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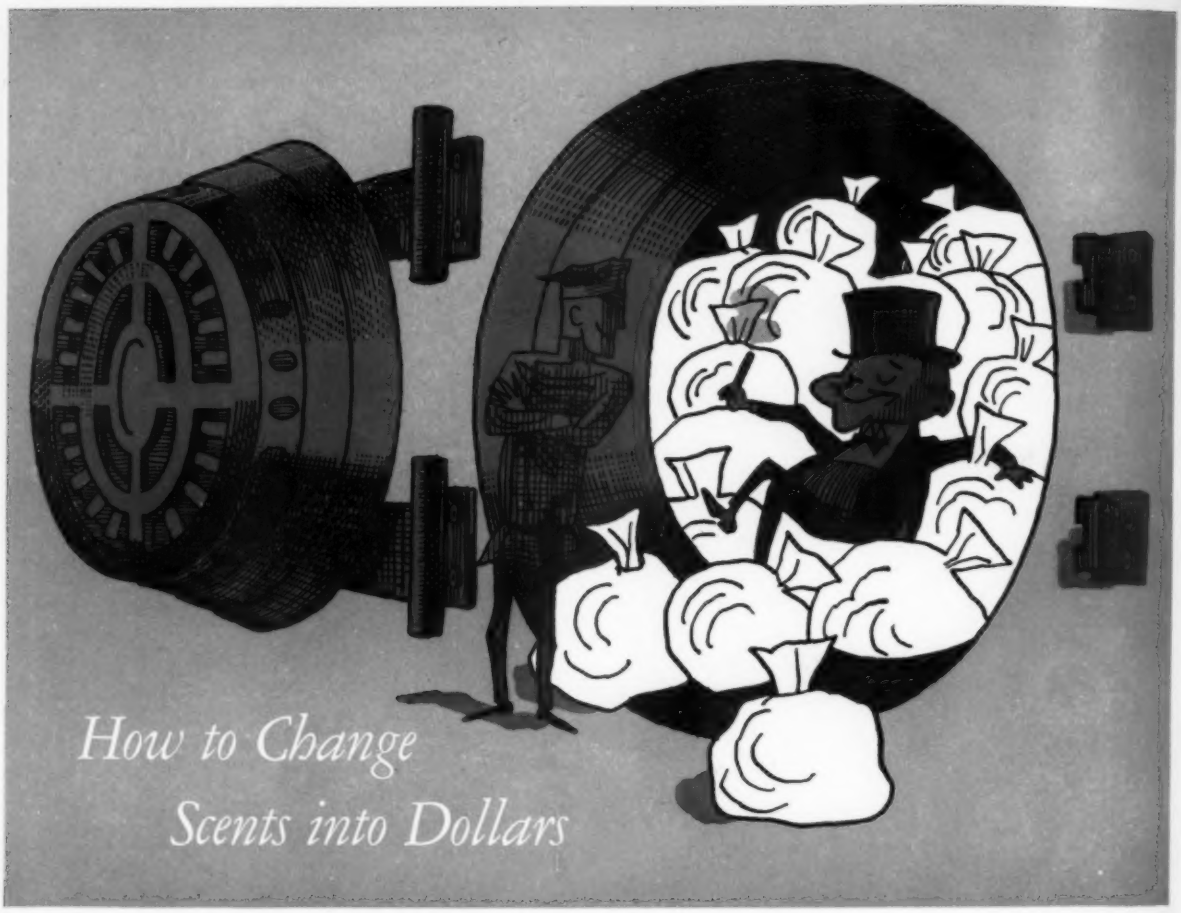

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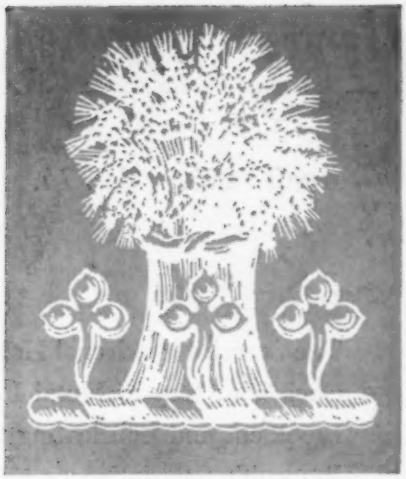

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Drug and Cosmetic Industry

April 1954. Vol. 74. No. 4.

Feature Articles

The Search for Adrenal Hormones	*Norman Applezweig*	494
Chelation: Key to Metal Ion Control	*Martin Rubin*	496
Emollient and Lubricating Creams	*Harry Hilfer*	498
Rauwolfia Serpentina	*Milton A. Lesser*	500
Plant Self-Inspection	*L. James Graham*	502
Pharmaceutical Competition		504
Sterilizing Air by Direct Heating	*Berton M. Sharpe*	506
Export Law in Federal F.D.C. Act	*David Rasch*	508

Departments

Keeping Posted	*Thomas R. Farrell*	489
Packaging and Selling	*Frazer V. Sinclair*	511
Doin's		519
News	*Frank S. Child*	527
Trade Literature		537
Management Forum	*Francis Chilson*	541
Advancing Therapy	*Milton A. Lesser*	552
Readers' Questions	*Milton A. Lesser*	555
Animal Health	*Milton A. Lesser*	556
Industry's Books	*Harry G. Kelbly*	559
Compounder's Corner	*Milton A. Lesser*	560
Patent Thoughts and Trends	*Thomas Cifelli, Jr.*	563
Perfumer's Shelf	*Milton A. Lesser*	568
Abreast of the Markets	*Frank S. Child*	571

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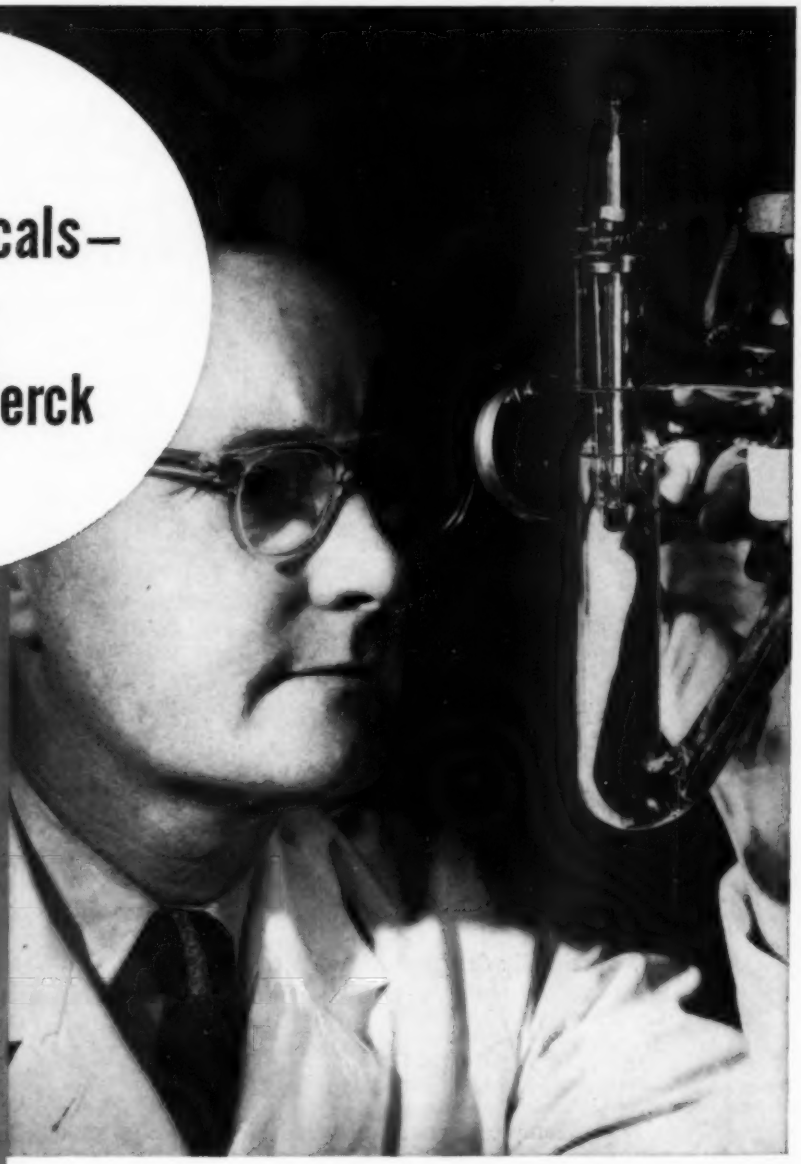

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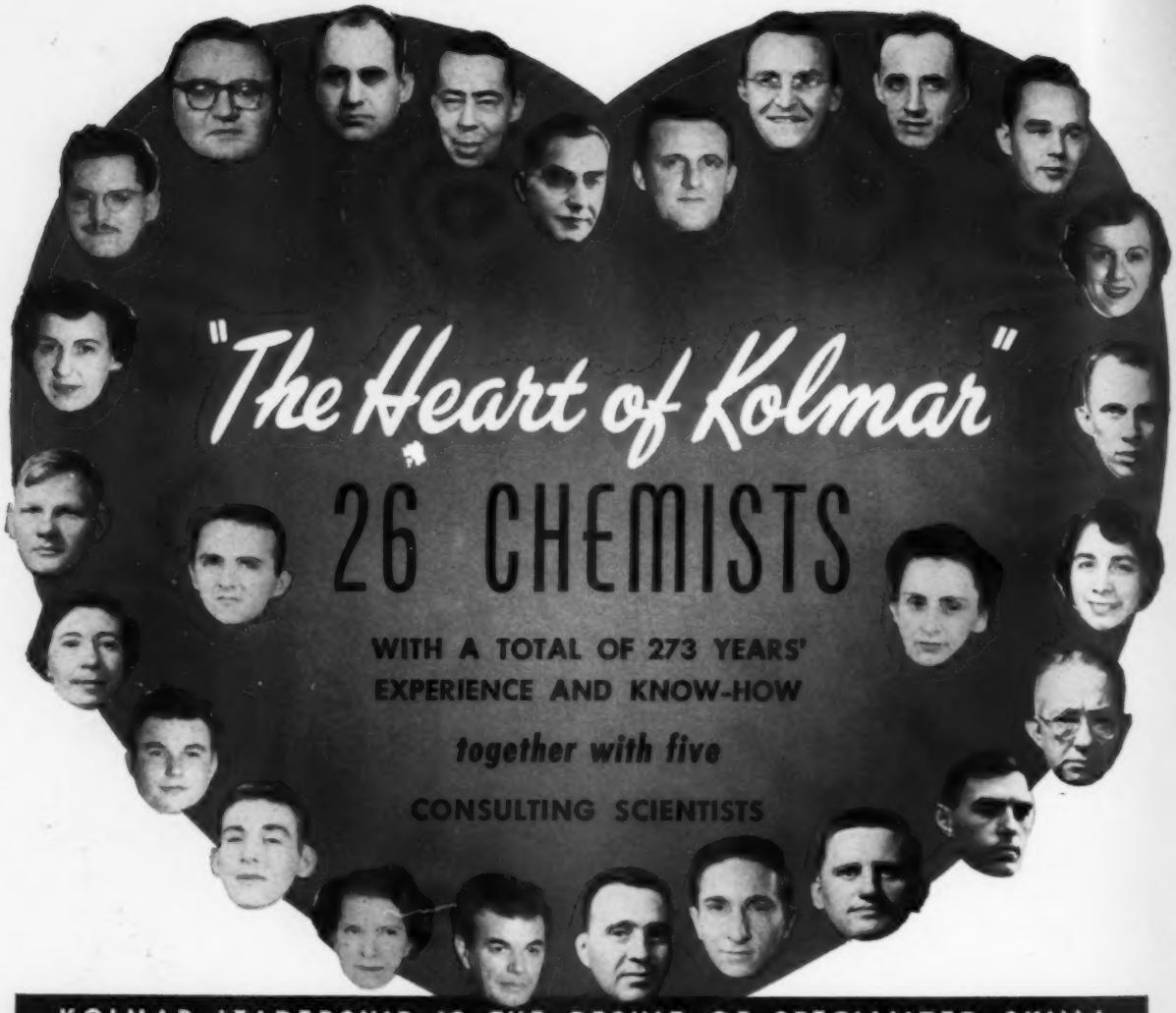
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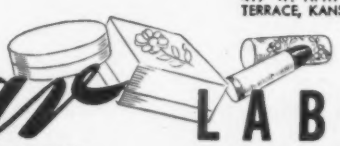

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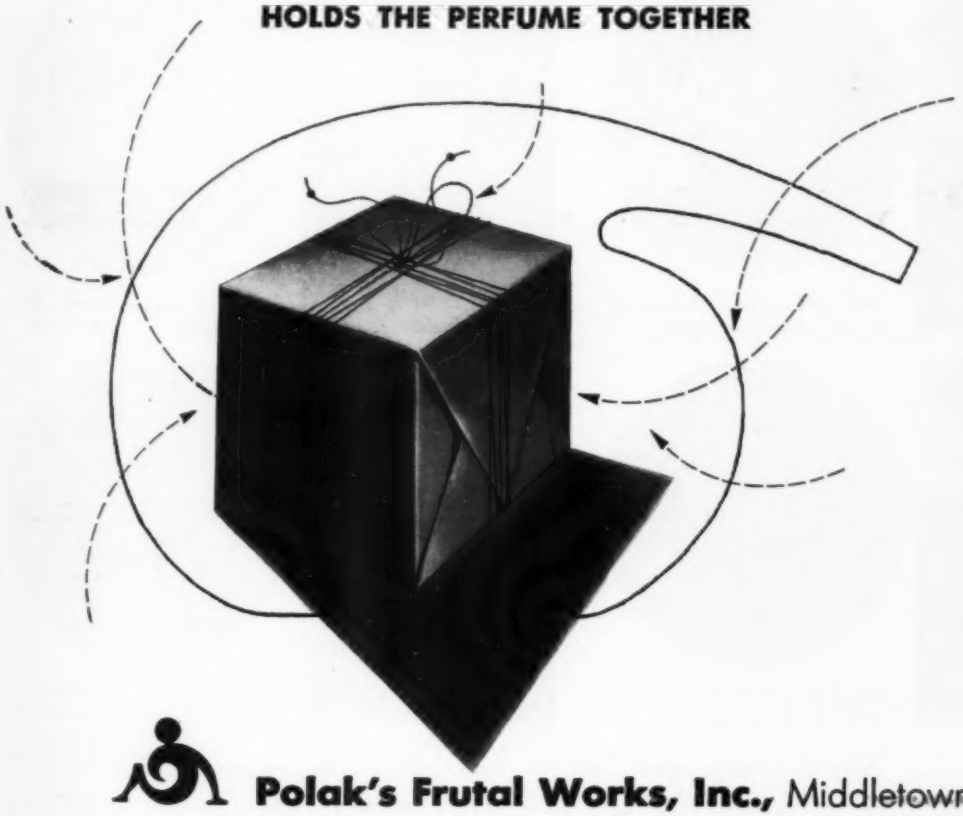

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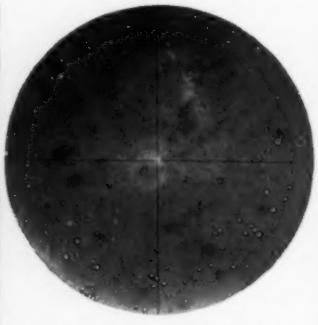
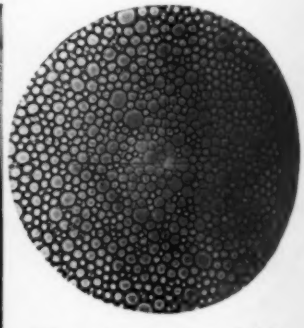
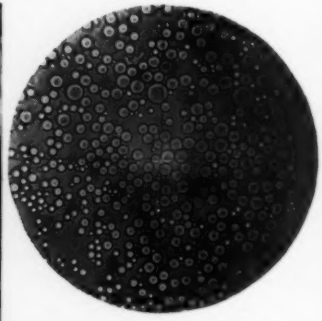
The accompanying photomicrographs show the reason for the structural increase in viscosity. As the amount of water in the emulsion increases, the water particles are mechanically crowded more closely together.



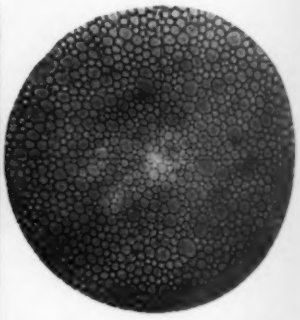
100 cc. of water added. *Emulsion has light creamy consistency.*



300 cc. of water dispersed. *Note high viscosity.*



200 cc. of water added. *Appreciable thickening has resulted.*



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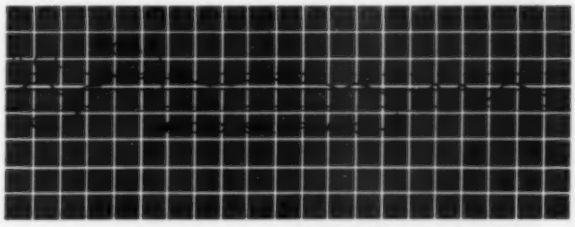

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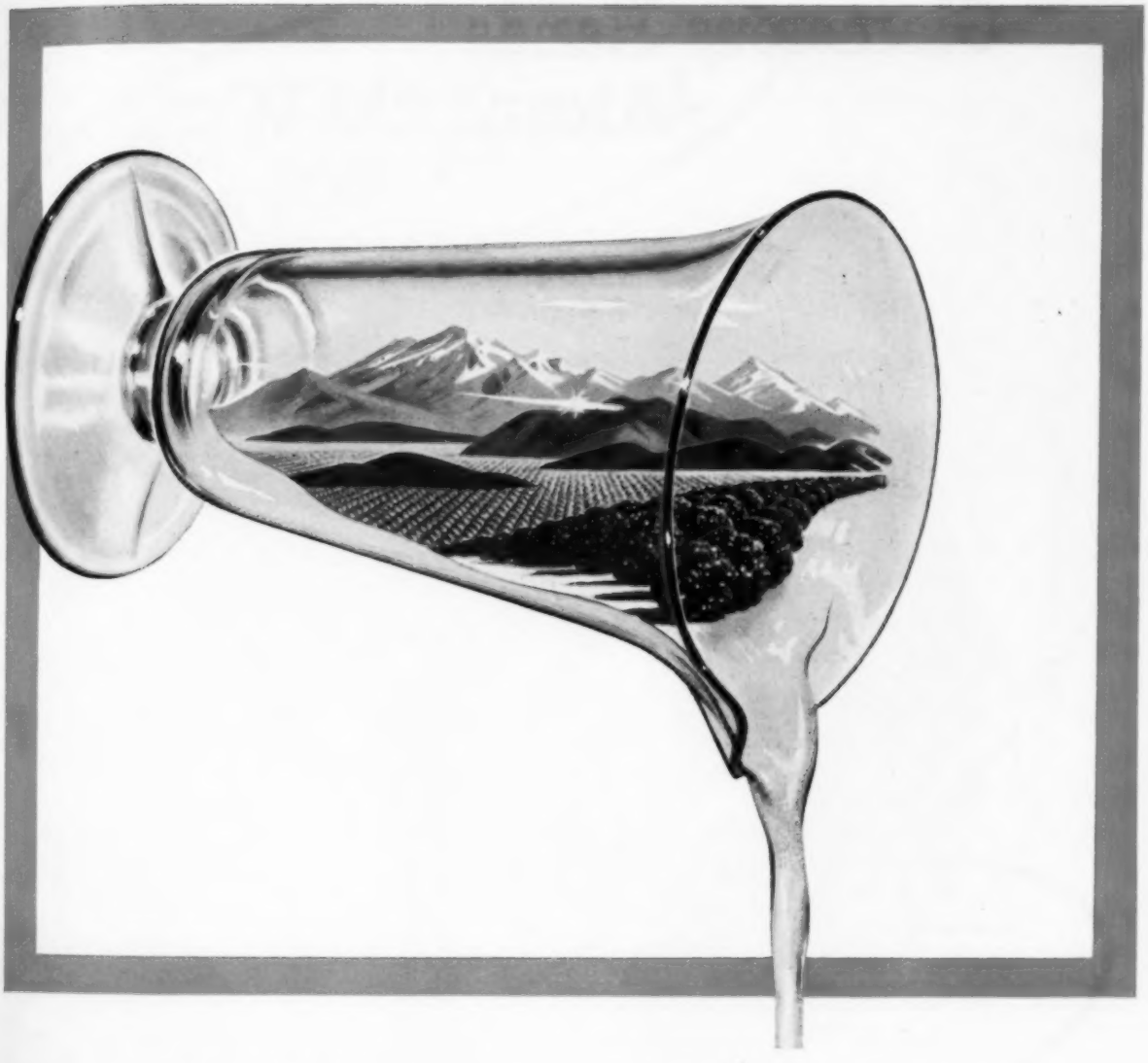

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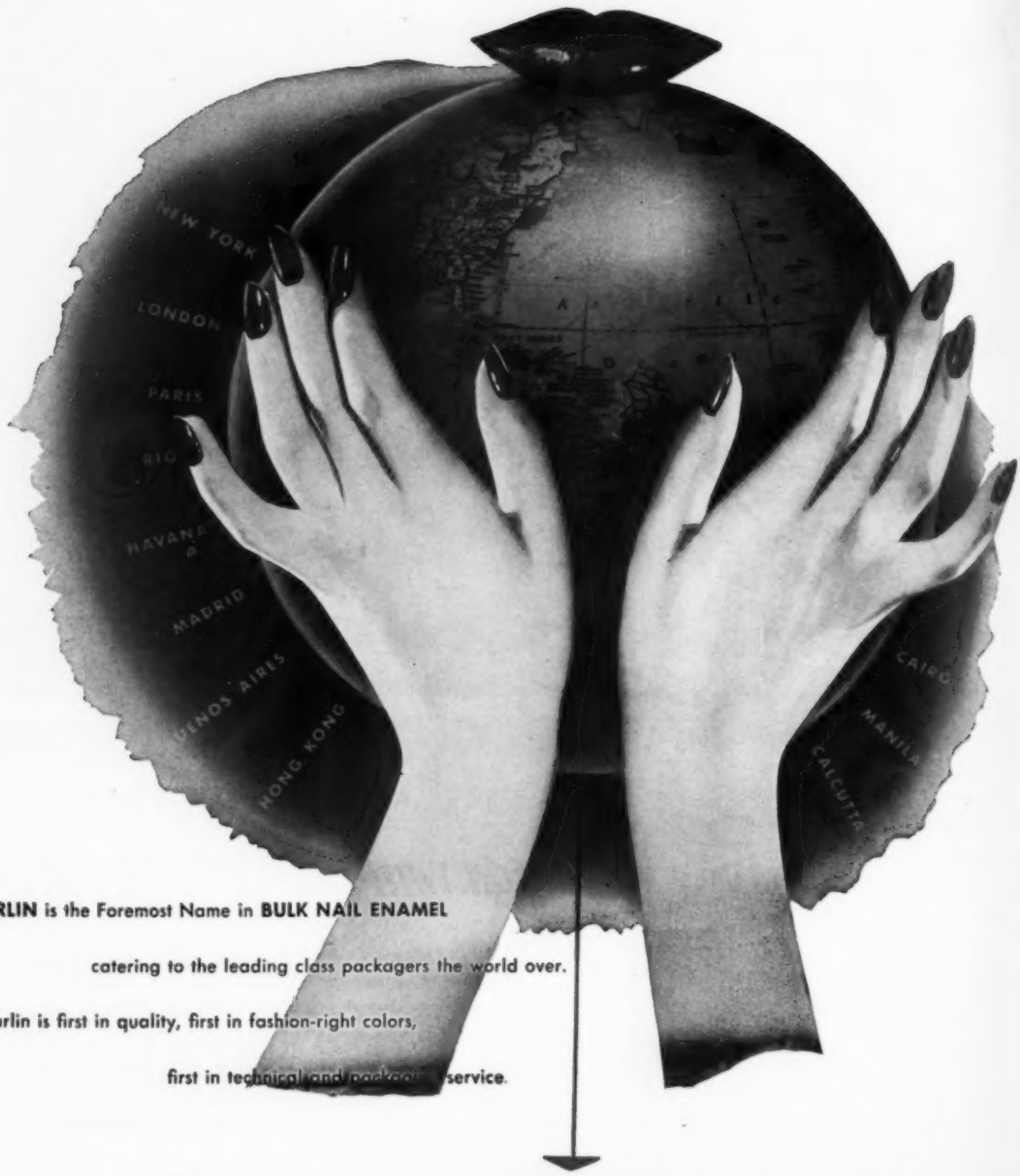

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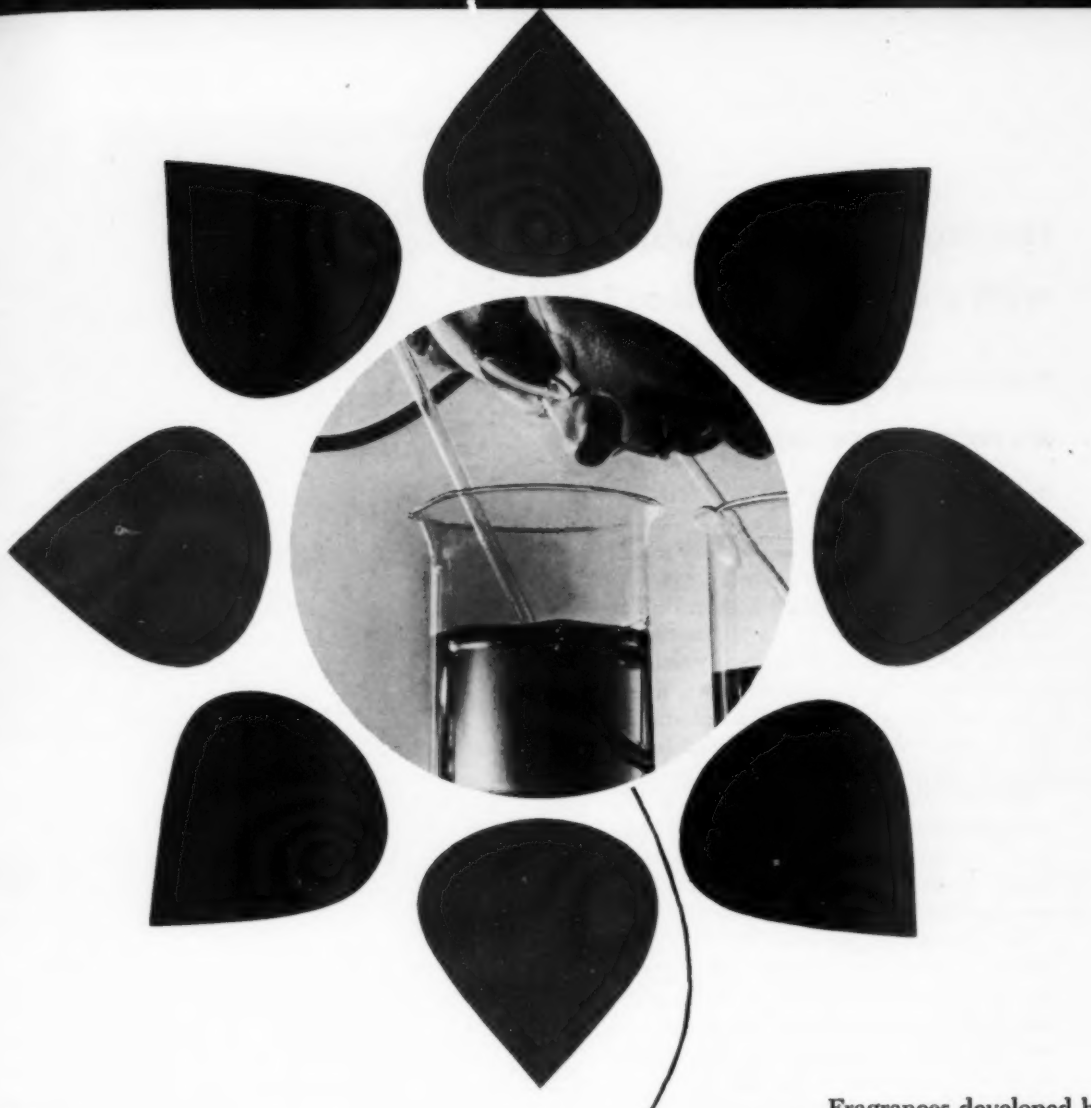

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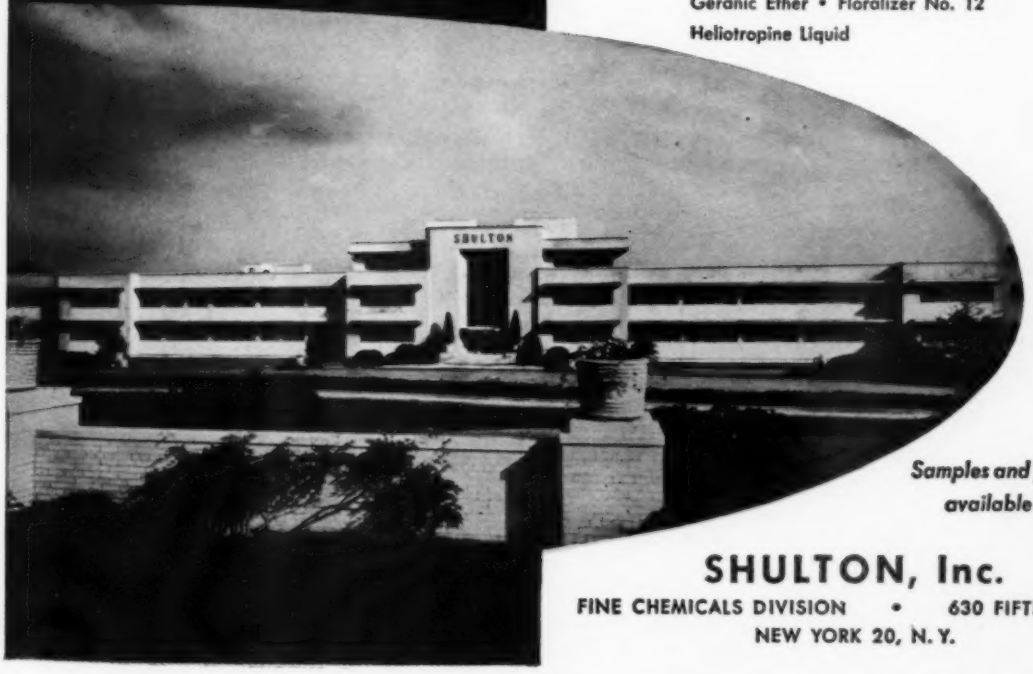

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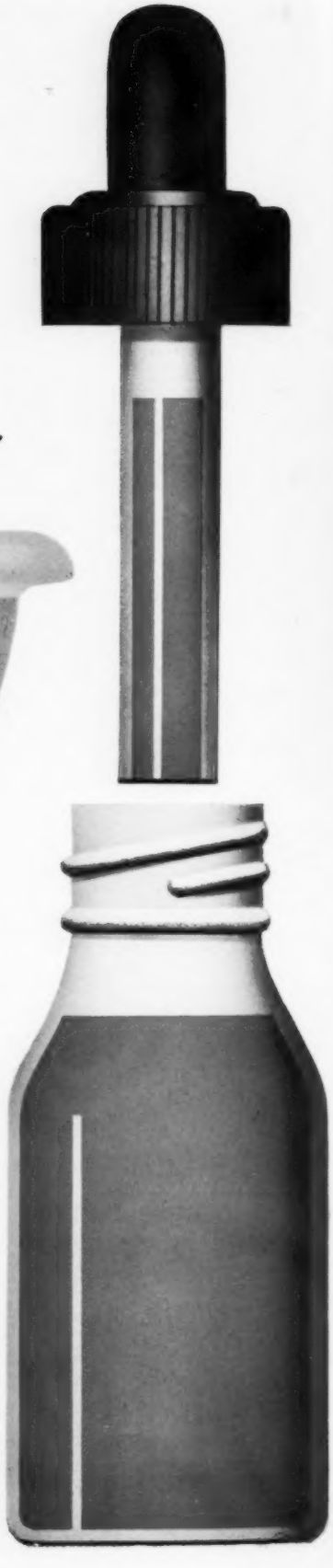

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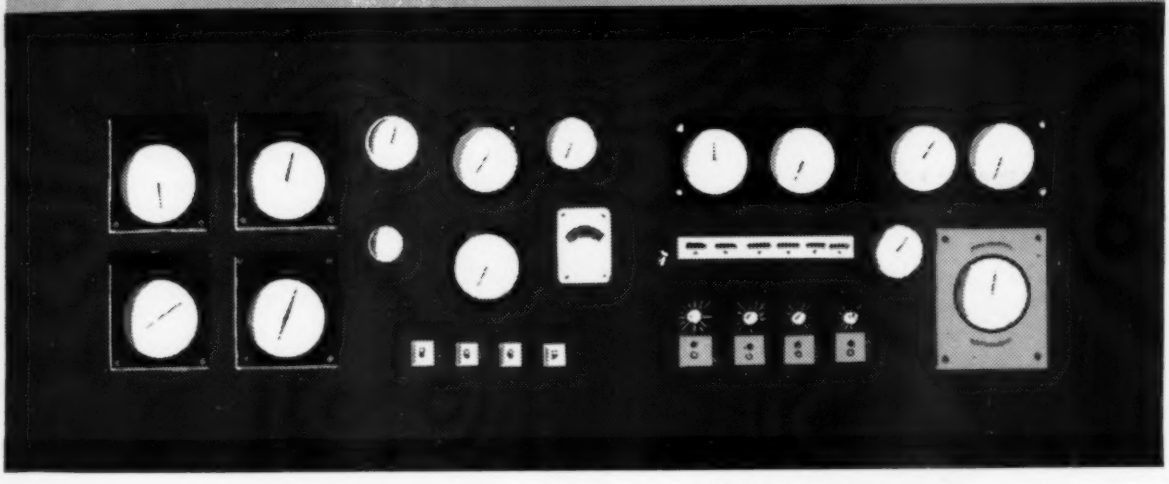

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DISTILLED RED OIL	GROCO 2	GROCO 4
Titre	1°— 3°C.	4°— 6°C
Cloud Point	34°— 38°F.	39°— 42°F
Color Lovibond 1" Red	3 — 6	3 — 6
Color Lovibond 1" Yellow	15 — 30	15 — 30
Unsaponifiable	1.5% max.	1.5% max.
Saponification Value	197 — 200	197 — 200
Acid Value	196 — 199	196 — 199
% F.F.A. as Oleic Acid	98.5 — 100	98.5 — 100
Iodine Value (WIJS)	92 — 96	90 — 95
Refractive Index 50°C. (Average)	1.4505	1.4500

DISTILLED RED OIL	GROCO 8 L.C.P.	GROCO 18 D.P.
Titre	8°— 10°C.	18°— 20°C.
Cloud Point	46°— 49°F.	63°— 67°F.
Color Lovibond 1" Red	3 — 6	3 — 6
Color Lovibond 1" Yellow	15 — 30	15 — 30
Unsaponifiable	1.5% max.	1.5% max.
Sapcnification Value	197 — 200	197 — 200
Acid Value	196 — 199	196 — 199
% F.F.A. as Oleic Acid	98.5 — 100	98.5 — 100
Iodine Value (WIJS)	88 — 93	80 — 85
Refractive Index 50°C. (Average)	1.4495	1.4485

WHITE OLEINE U.S.P.	GROCO 6
Titre	2°— 6°C.
Cloud Point	35°— 43°F.
Color Lovibond 5¼" Red	1 — 2
Color Lovibond 5¼" Yellow	8 — 12
Color Gardner 1933	3 max.
Unsaponifiable	1.0% max.
Saponification Value	199 — 203
Acid Value	198 — 202
% F.F.A. as Oleic Acid	99.5 — 101.5
Iodine Value (WIJS)	95 max.
Refractive Index 50°C. (Average)	1.4500

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Active Ingredients	(approx.) 33 to 35%
Solubility in water	In all proportions
Iron	Less than 20 p.p.m.

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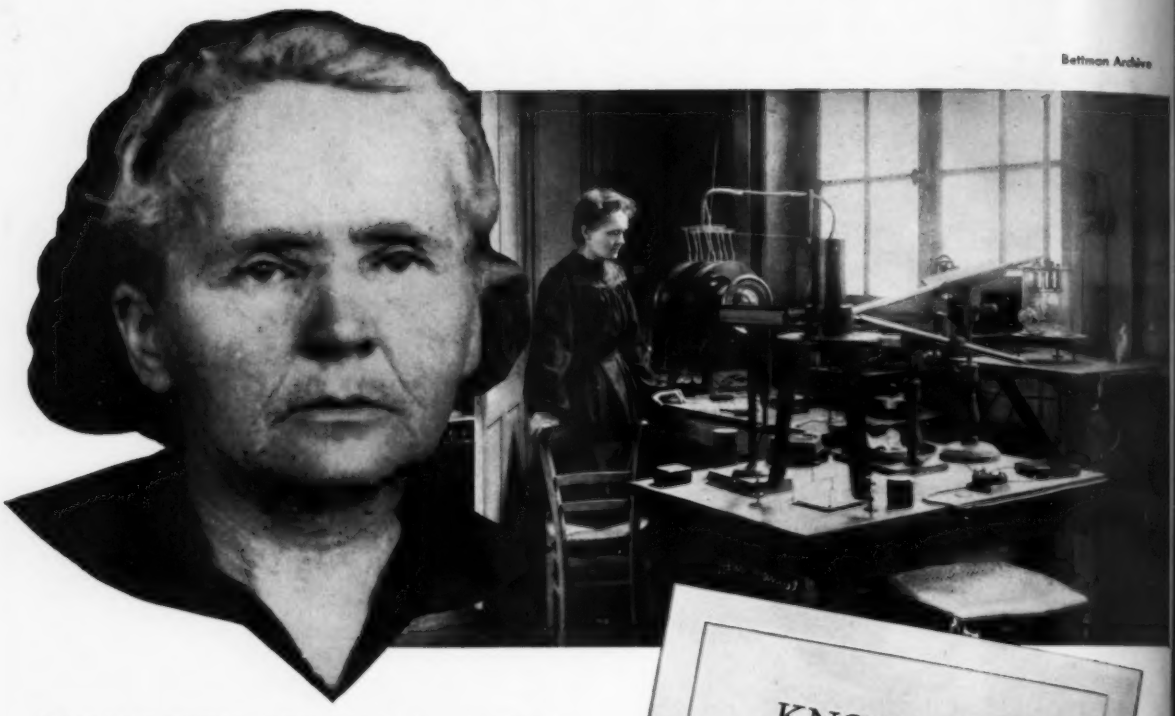

Bettmon Archive

MADAME CURIE (1867–1934), born as Marie Sklodowski in Warsaw. Credited with the discovery of radium when she and her husband in 1898 obtained polonium and radium from pitchblende. Illustration shows Madame Curie in her laboratory in the year 1905.

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U.S.I. CHEMICAL NEWS

April ★ A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1954

Organosodium Compounds Are Opening New Frontiers

Organosodium compounds, made in a liter flask or a 1000-gallon reactor, are opening new, economical routes to the synthesis of phenylacetic acid, dimethyl phenylmalonate, benzophenone, and many others, including organotin, -phosphorus and -silicon products.

The method uses sodium dispersions, which are prepared by suspending microscopic sodium particles (10-20 microns) in various hydrocarbons, such as toluene, xylene or kerosene. High speed agitation is used to disperse the molten sodium in the liquid hydrocarbon.

The organosodium compounds are prepared by reacting organic compounds with the dispersed sodium. Phenyl sodium, for instance, is made by metering chlorobenzene into the sodium dispersion. The minute particles permit the reaction to start immediately and give high yields. Alaphatic, aromatic and heterocylic derivatives can be formed in this manner.

For more detailed information, write for U.S.I.'s new Sodium Dispersion Booklet.

Germanium Is Refined To Almost 100% Purity

A new, simple process reportedly refines germanium to practically perfect purity. It is also being used to refine various metals, organic and inorganic substances.

Germanium from the process may well be the purest material in existence. It is said to have only one atom of impurity in ten billion atoms of the material — about the same as a pinch of salt in 35 freight cars of sugar.

Rubber Process Improves Safety of Retreaded Tires

Retreaded tires reportedly can now give the same skid protection and traction as new tires. A new process puts skid resistance and traction into the rubber at the factory before it is shipped to the retreading shop.

The company claims that the new tread rubber gives 30 per cent more surface traction than retreads in wide use today, with at least equal tread mileage.

Plastic Coating Protects Big Chemical Equipment

A plastic protective coating can extend service life and cut maintenance costs of large chemical processing equipment. The baked-on coating is said to resist exhaust gases containing corrosive chemicals and inhibit rust and blistering of metal surfaces.

Highly adhesive to metal surfaces, the coating is uniformly applied and then fused by baking. The coatings vary in thickness from 1/32 to 3/16 of an inch and form a continuous protective sheath over crevices. According to the manufacturer, cast iron duplex strainer bodies weighing 1,200 pounds have been protected in this manner.

Use of Methionine Saves Lives In Study of Newborn Disease Caused by Rh Incompatibility

Shows Promise in Other Obstetrical Complications

Methionine shows excellent promise in the treatment of hemolytic disease (erythroblastosis) of the newborn, an often fatal disease caused by Rh incompatability. In a preliminary study, 66.6% of babies whose mothers had taken methionine were saved, as compared with 5.25% surviving for cases refusing the prenatal treatment. These percentages are based on cases classified as severe by the clinicians.

Hemolytic disease is accompanied by damage to the liver of the unborn child. Normal liver functions can be maintained only when the body obtains enough protein, and the amino acid methionine, a component of protein, is needed by the body to metabolize protein itself. Previous investigations have shown that methionine helps to protect the liver from damage, even when the protein intake is low. This led to the belief that methionine might be valuable in the treatment of hemolytic disease and other obstetric complications associated with liver damage of the mother and newborn.

Cases involving many pregnant women suffering from Rh incompatability were studied. Most of the women had lost children previously as a result of the disease. All were offered the chance to take methionine, but less than half decided to do so. Those not taking methionine were studied as a control group for purposes of comparison.

Methionine Administered Orally

At the first signs of Rh-factor complications, the women who volunteered to take methionine were given 5 grams of the amino acid in capsule form each day (equivalent to that found in 5 quarts of milk). The researchers believed that the unborn offspring would use this extra methionine as a protection against liver damage. This treatment was continued until pregnancy was terminated. As mentioned previously, two out of

MORE

Five New Intermediates Available to Industry

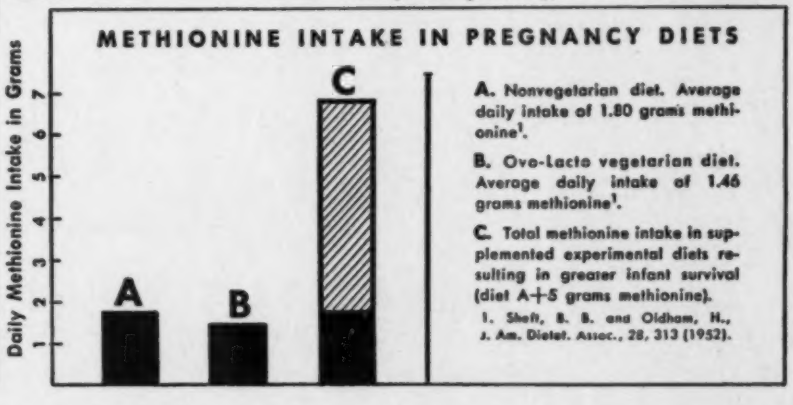
Five new chemical intermediates are available from U.S.I.: Allyl Acetone; Ethyl Chrysanthemumate; 2,5-Dimethyl Hexadiene-2,4; Ethyl-α-Allylacetoacetate; and Ethyl Diazoacetate. They are potential building blocks for such products as pharmaceuticals, perfumes, fungicides, insecticides and fine chemicals and themselves are intermediates in U.S.I.'s complicated 18-step industrial synthesis of allethrin.

Except for Ethyl Diazoacetate, commercial and experimental quantities are available to industry. Ethyl Diazoacetate will not be available as such unless current studies show that it can be shipped and stored safely. However, U.S.I. has extensive facilities which can handle large quantities of the versatile chemical safely and is prepared to make these facilities available to other manufacturers for the synthesis of various derivatives.

Technical data sheets describing the intermediates can be obtained by writing Department D, U. S. Industrial Chemicals Co.

Invisible Markings Made By Fluorescent Pencils

Fluorescent pencils are recommended for any place where invisible instructions or identification treatment is wanted. According to the manufacturer, markings are invisible on white or light surfaces, but will fluoresce a brilliant green when activated by blacklight.


METHIONINE INTAKE IN PREGNANCY DIETS
Daily Methionine Intake in Grams
1
2
3
4
5
6
7
A
B
C
A. Nonvegetarian diet. Average daily intake of 1.80 grams methionine[1].
B. Ovo-Lacto vegetarian diet. Average daily intake of 1.46 grams methionine[1].
C. Total methionine intake in supplemented experimental diets resulting in greater infant survival (diet A+5 grams methionine).
1. Shaft, B. B. and Oldham, H., J. Am. Dietet. Assoc., 28, 313 (1952).

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April ★ **U.S.I. CHEMICAL NEWS** ★ 1954

CONTINUED

Methionine Saves Lives

three newborn whose mothers took methionine survived, as compared with about one in twenty surviving when methionine was not taken by the mother.

Other Complications Studied

The authors also studied the value of methionine in treating other types of obstetrical complications associated with liver and kidney damage. These were toxemia of pregnancy, postdelivery shock and inflammation of the liver. The results in these studies were also encouraging.

Toxemia implies the presence of toxic substances in the blood. The tendency towards insufficient protein intake during pregnancy becomes more pronounced during toxemia. This condition is reported to cause more deaths than any other complication in obstetrics. In the work reported, a beneficial diuresis to alleviate the toxemia followed the administering of methionine to patients. Kidney function seemed to be improved. In some cases, this happened after ordinary medication had failed. Edema associated with impaired kidney function also was relieved after methionine had been given.

Methionine assisted in the treatment of postdelivery shock and inflammation of the liver. Postdelivery shock can bring about impaired functions of the liver and kidney which sometimes lead to permanent damage.

Obstetrics is one of the many fields of medicine where methionine is being used in increased amounts.

Adhesives Set Under Water

Adhesives which set under water were recently announced. Said to give good adhesion to metals, glass, paper, fabrics and plastics, the new products remain pliable, yet retain their adhesive strength at temperatures ranging from —55 to over 250° C.

Ointments Protect Skin From Chemical Irritants

Two new types of ointments which protect the skin against various industrial irritants have been marketed.

The first resists organic solvents and solvent-borne irritants. It contains a modified carbohydrate gum base. When dry, the protective gel is said to form a continuous elastic film which adheres to the skin.

The other type is designed to protect the skin from water solutions and water-borne irritants. Two creams of this type are available. They are described as plasticized combinations of ethyl cellulose and castor oil in mixed propanols with a water-repellent vanishing cream base. The creams form invisible, water-insoluble coatings on the skin which withstand normal washing with soap and water.

Safety Instrument Runs Quick SO_2 Determinations

A portable instrument for quickly determining sulphur dioxide concentrations is said to be exceptionally accurate and easy to use. The maximum allowable concentration of SO_2 in working atmospheres is 10 ppm for an 8-hour exposure. The new device determines concentrations of from 0 to 50 ppm.

The manufacturer of the safety apparatus expects it to be valuable in such process industries as petroleum refining, chemical processing, and paint and pigment.

New Dust Collector Holds Fine Particles

A newly developed dust collector is designed for applications where extremely fine particles are involved or where the material must be collected in a dry state.

The cleaning cycle is described as continuous, with the cleaning media being automatically reconditioned by a jet of high pressure air forced through the cloth.

TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U.S.I.

Tweezers which operate on a plunger principle and can pick-up oddly shaped objects have been marketed. They are said to be ideal for highly polished or sterile pieces. **(No. 1030)**

A new drug for ulcer treatment has been introduced. Clinical and animal tests are said to have shown that the compound has a powerful effect in reducing the secretion of acid in the stomach, instead of merely neutralizing the acid already secreted. **(No. 1031)**

Radioactivity absorbers are available which can be used to determine energies of photons and beta radiations, check isotope purity, identify radioactive species, and count a radioisotope in the presence of another. **(No. 1032)**

A new moisture meter is said to measure surface moisture in powdered, granulated or fibrous material in less than 2 minutes and to be accurate to 2% of surface moisture as compared to standard air-dried surface moisture results. **(No. 1033)**

A quick-acting electronic cleaner for contacts, controls and tuners in television sets, radios and record changers has been developed. According to the company, the product eliminates noise caused by dirt from volume controls. **(No. 1034)**

A new caulking compound comes in tape form. Supplied in a variety of widths and thicknesses, the tape is described as both a corrosion inhibitor and vibration cushioner. It can be painted over, or even baked, after application. **(No. 1035)**

Liquid resins for use in the production of reinforced plastics tooling are available. The manufacturer states they can be used in combination with fiberglas fabrics in making spotting racks, checking fixtures and assembly jigs. **(No. 1036)**

Thiophenol is being produced in semicommercial quantities. It is expected to find use in such products as pharmaceuticals, dyes, polymerization regulators and oil additives. **(No. 1037)**

A liquid synthetic rubber spreads easily like paint and rubberizes at normal temperature. Designed for home and industrial repairs, the product is reported to form a flexible film that adheres to plastic, metal, wood, fabric and glass. **(No. 1038)**

A pocket-sized magnet can be used as a recovery tool by anybody who works with metal. The self-contained instrument can be attached to a rope or wire and lowered in vertical pipes, water, barrels and other inaccessible areas. **(No. 1039)**

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Propanol (Normal-Propyl Alcohol)

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Diethyl Oxalate

PHTHALIC ESTERS
Diamyl Phthalate
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OTHER ESTERS
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Diethyl Carbonate
Ethyl Chloroformate

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Aroflat*—for special flat finishes
Aroflint*—room temperature curing phenolic
Aroplaz*—alkyds and allied materials
Aropol*—copolymer modified alkyds
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Natural Resins—all standard grades

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Piperonyl Cyclonene
Pyrenone* Concentrates: Liquid & Dust
Pyrethrum Products: Liquid and Dust
Rotenone Products: Liquid and Dust

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Indalone*
Triple-Mix Repellents

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Acetoacet-ortho-chloroanilide
Acetoacet-ortho-toluidide
Acetoacet-para-chloroanilide
Ethyl Acetoacetate
Ethyl Benzoylacetate
Ethyl Sodium Oxalacetate

FEED PRODUCTS
Calcium Pantothenate (Feed Grade)
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Curbay B-G* 80
DL-Methionine (Feed Grade)
Niacin, U.S.P.
Riboflavin Concentrates
Special Liquid Curbay*
U.S.I. Vitamin B_{12} and Antibiotic Feed Supplements
Vacatone* 40

OTHER PRODUCTS
Acetaldehyde
Caustic Soda
Ethylene
IPC (Isopropyl-N-Phenyl Carbamate)
CIPC
Liquid Chlorine
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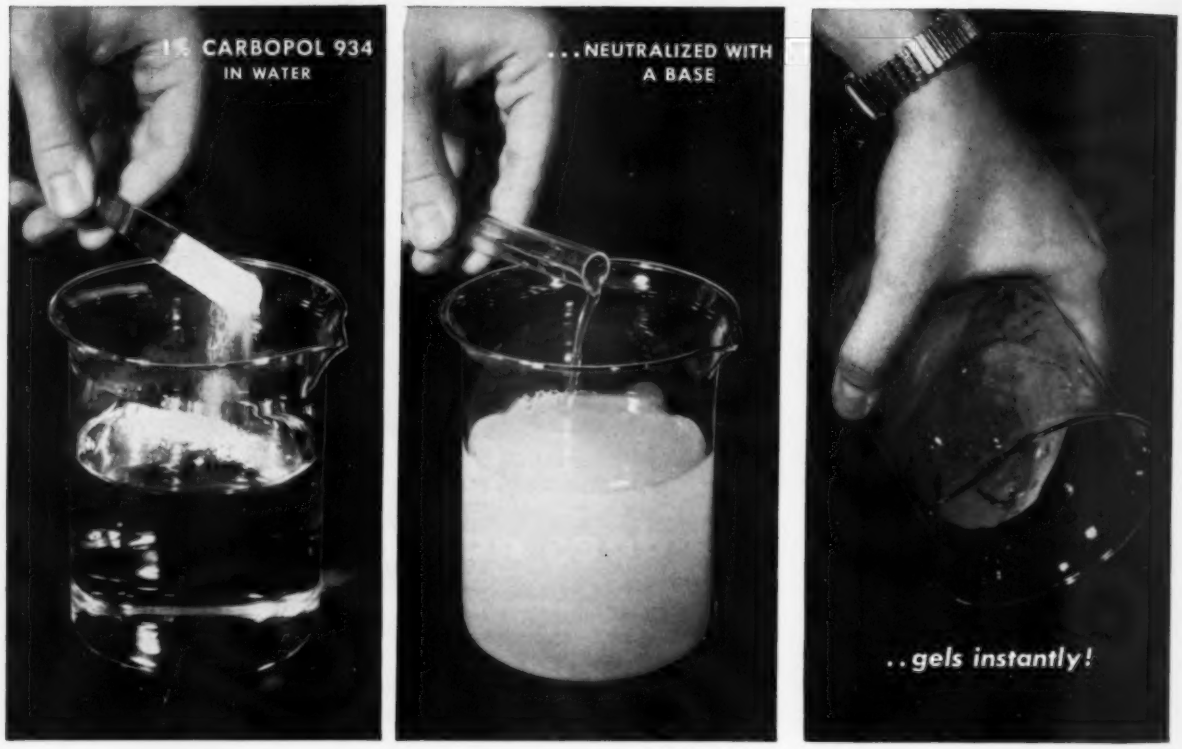

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Carbopol 934 is a free-flowing white powder which easily disperses in water to form a low viscosity, low pH solution. Neutralization results in a clear stable gel.

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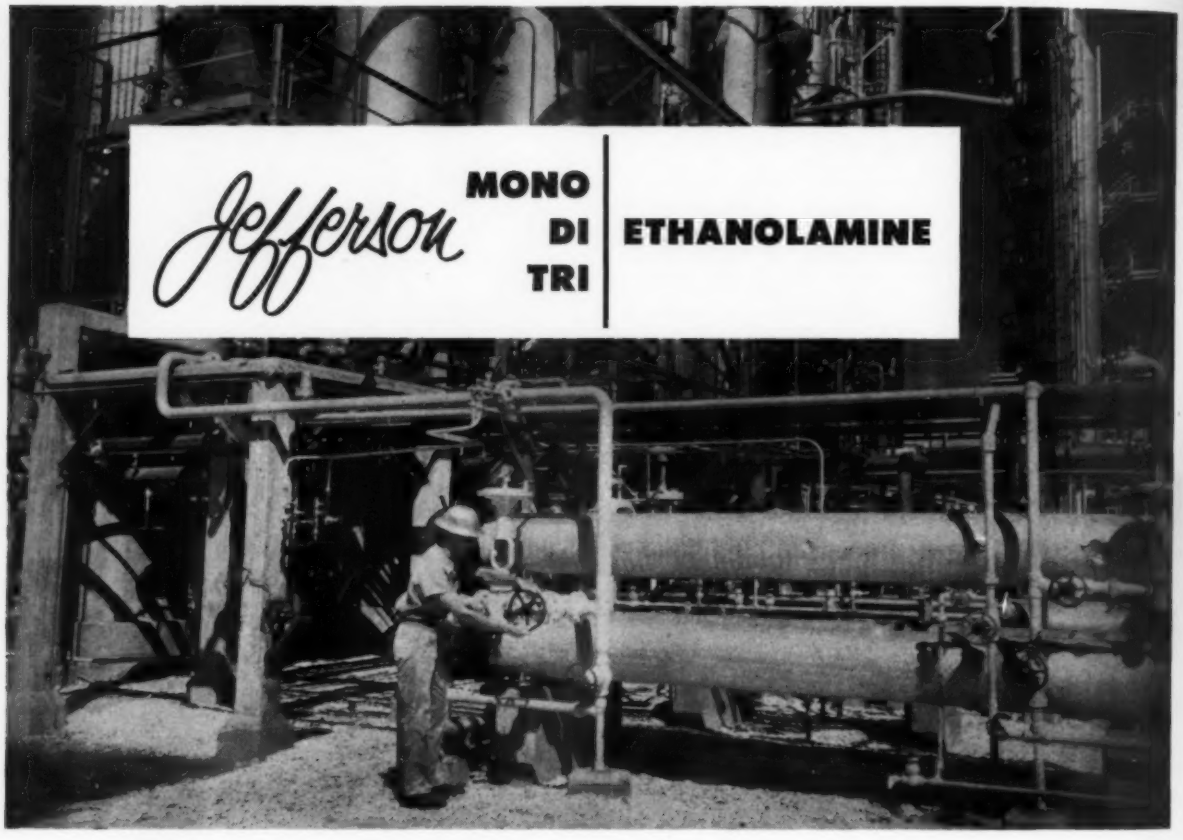

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Morpholine
Ethylene Carbonate
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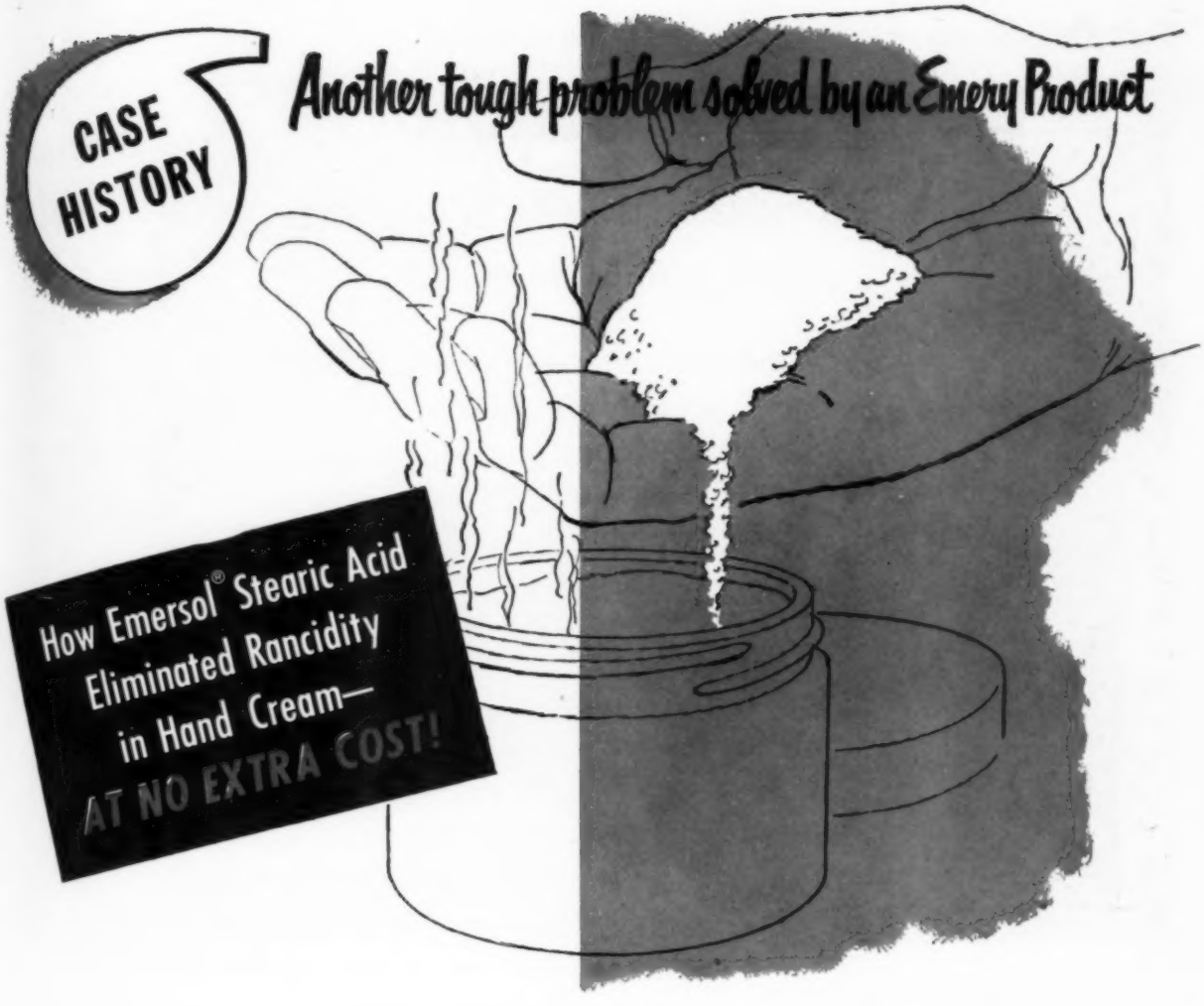
CASE HISTORY

Another tough problem solved by an Emery Product



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To have rancidity in cosmetics is unthinkable. That's why this manufacturer of hand cream changed from an ordinary triple-pressed stearic acid to Emersol 132 Lily Stearic Acid... to obtain maximum oxidation stability. Not only was his product fresher and sweeter from the first, but it stayed that way longer.

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Write to Dept. D-4 for the complete story on Emersol Stearic Acids

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Emersol, a contraction of the words "Emery" and "Solvent", describes Emery's exclusive process of solvent separation of fatty acids. Of more significance, however, is its meaning in terms of product performance. Because of this unique process, the use of automatic controls and of corrosion-resistant metals throughout, Emersol Stearic and Oleic Acids are purer, more uniform, of "controlled" composition, and freer from metal contamination and other impurities that promote oxidation, rancidity and yellowing.

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this message is especially vital now that the need for vitamin B_{12} in human nutrition has been recognized (Federal Register Feb. 10, 1954)

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● The trend towards higher daily dosages of Vitamin B_{12}—now accentuated by recognition of the need for B_{12} in human nutrition—places raw material costs under increasing strain. Where one microgram was the accepted dosage, three to five micrograms are now included in many vitamin products. One way to minimize these higher costs is to formulate vitamin preparations with Pfizer Vitamin B_{12} Concentrate Oral Grade.

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Your unusual requirements, as well as your regular needs, can be met because of Givaudan's extensive facilities as the world's largest producer of aromatics. Nowhere will you find such a range of quality materials to select from.

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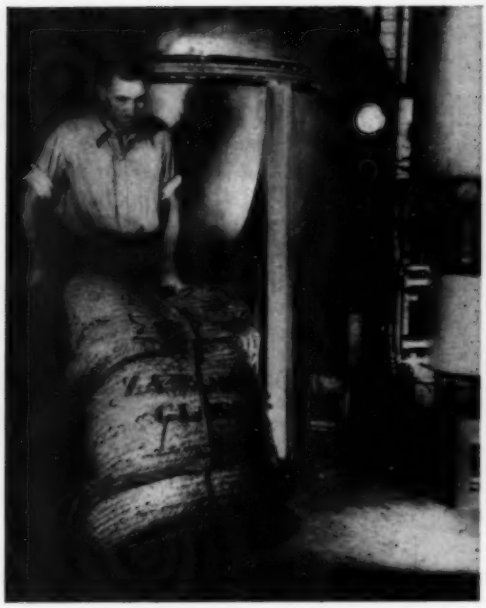
world's
such a

Knowledge of consumer acceptance, gained by long experience and continuing studies, enables Givaudan to help you develop fragrances of proven appeal.



Close contact with markets throughout the world enables Givaudan to obtain dependable supplies of rare as well as abundant raw materials. Givaudan sources are established and reliable.

Finest quality of aromatics is made possible through careful selection of materials by expert perfumers throughout manufacturing procedures.

The increasing variety of materials
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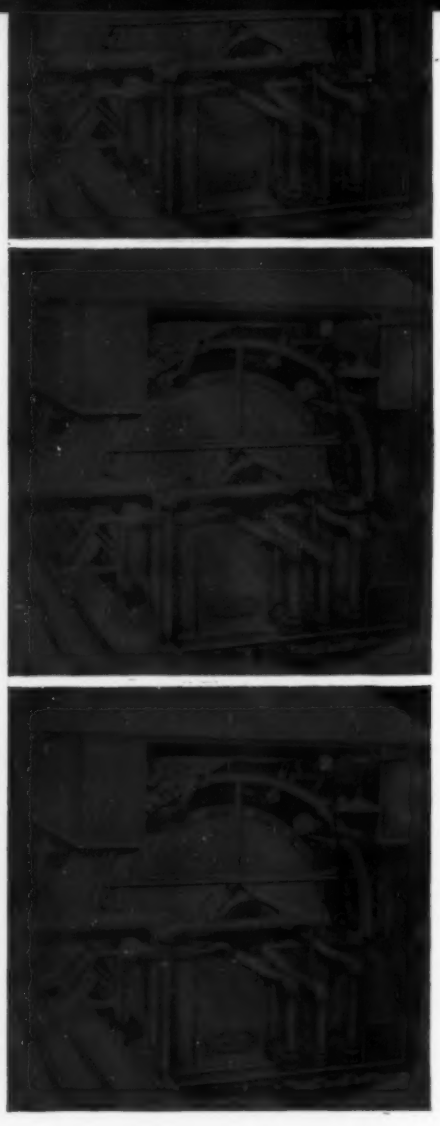

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"Doctor, we'd like you to have one of our air-conditioners."

Private Brand Association

A new trade association representing the interests of private brand manufacturers of drugs, cosmetics, and household chemicals has been organized by Arthur D. Herrick, food and drug lawyer and consultant, under the name of the National Association of Private Brand Manufacturers, Inc., with offices at 39 Broadway, New York 6. Mr. Herrick is known to many in this industry as organizer and guiding light of the Parenteral Drug Association.

According to Mr. Herrick, the Association will "work for a modification of many burdensome governmental regulations, particularly several contained in the Federal Food, Drug, and Cosmetic Act. It plans also to set up a Code of Ethics for the industry as a whole and otherwise endeavor to maintain high commercial standards and inspire consumers' confidence. It intends, moreover, to provide for uniform agreements with customers that more clearly outline the responsibilities involved."

"The Association can be of further assistance to its members by encouraging increased use of private brand facilities," said Mr. Herrick. "Among the suggestions advanced has been the publication of a directory listing members with their facilities, which will be widely distributed to the drug, cosmetic, and chemical industries, and also a series of cooperative advertisements in the trade papers emphasizing the advantage of employing members' facilities. It is further expected that the Association can render considerable services to its members by suggesting proper label copy, obtaining rulings on the prescription status of borderline drugs, and aiding in cooperative preparation and filing of new drug applications."

Temporary directors of the Association are: Sidney Chasman (Chase Chemical Co., Newark, N. J.), John de Elorza (Old Empire, Inc., Newark, N. J.), Dennis I. Duveen, Duveen Soap Corporation, Long Island City, N. Y.), Victor M. Hermelin (Keith-Victor Pharmacal Company, St. Louis), and Paul G. Lustgarten (Vitamix Corporation, Philadelphia).

Dr. Holland—FDA Medical Director

Dr. Albert H. Holland Jr. has been appointed medical director of the Food and Drug Administration, filling the post vacated by Dr. Erwin E. Nelson in July 1952. In the interim Dr. Irvin Kerlan has been serving as acting medical director. Dr. Holland comes to the FDA from Armour Laboratories where he has been medical director since January 1951. Before joining Armour he was director of the Office of Research and Medicine at the Oak Ridge, Tenn. operations of the Atomic Energy Commission. Prior to holding this post he was medical advisor to the Manhattan Engineering District project at Oak Ridge, having been assigned originally by the Army as Medical Liason Officer. Dr. Holland's service at Oak Ridge covered a period of approximately four years, from 1946 to 1950.

Dr. Holland, who is a son of the late Judge Albert H. Holland of the Court of Common Pleas, Morris County, N. J., is a graduate of Valley Forge Military Academy, the Brothers College at Madison, N. J., and the New York University College of Medicine, where he was president of the 1944 graduating class. He interned in the New York Post-Graduate Hospital, followed by an assistant residency at Memorial Hospital, then returning to Post-Graduate Hospital as resident in internal medicine. He left the latter position to enter the Army Medical Corps.

Norito and Arthritis

The Norito Company, Chicago, has stipulated with the Federal Trade Commission to stop advertising that the medical preparation, Norito, constitutes an adequate, affective, or reliable treatment for any kind of arthritis, rheumatism, or neuritis. The company also agrees to stop claiming that the products arrests the progress of, corrects the underlying causes of, cures, or has any effect upon any of the symptoms, manifestations or discomforts beyond affording temporary relief of minor aches, pains or fever. Representations that the product is safe for all persons or under all conditions of use will also be stopped. Also the product will no longer be advertised as a prescription, a miracle formula, a miracle medicine, a wonder formula, or one of the wonder drugs. Also provided for is discontinuance of claims, contrary to fact, concerning the amount of money expended in development of the product. The agreed statement of facts cites advertisements representing $1 million has been expanded in developing Norito.

The Mennen Story

"The Mennen Story," a book by Alfred Lief, was published last month by the McGraw-Hill Book Company as part of year-long Diamond Jubilee celebration planned by the Mennen Company to commemorate its 75th anniversary. Starting with the development of a corn plaster by Gerhard Mennen in 1879, the book traces the history of the company to the present time.

Lief writes that the elder Mennen bought a horse and wagon, hired a minstrel singer and toured the New Jersey hinterland, often going into Pennsylvania and New York State. The entertainer would attract the crowd, then Mennen would tell them about—but would not sell—his corn plaster. Instead, he urged the people to go to their local drugstore and ask for it. Later, when Mennen introduced his baby powder, he jumped on the minstrel wagon again, but this time stopped along the way to visit the doctors, telling them about the baby powder that relieved chafing and prickly heat, had no harshness or rancid odor and prevented infection.

Gerhard Mennen soon hit on another idea—buying up billboard space left by the circus in the off season. This network of sheet poster space put the Mennen name in nearly every town and city of the country.

Gerhard Mennen died in 1902 and the business was carried on by his widow assisted by her brother, John J. Korb. In 1908, Gerhard Mennen's son, William G. Mennen, now president of the company, joined the business fresh out of Cornell. He began at the bottom, mastered each step of the business, becoming vice-president in 1912, and president following his mother's death in 1916.

Development of the first satisfactory shaving cream packaged in a collapsible tube is credited to William Mennen. Following this he quickly moved to develop other preparations to be used by men in grooming.

The Mennen Story closes with the third generation of the Mennen family—William G. Mennen Jr. and George Mennen, who are taking over the duties from their father, President William G. Mennen, at the modern new plant opened last year in Morristown, N. J.

A Critical Look at Cosmetics

Stating that the cosmetic industry has become an "outstanding factor in our lives," recently reaching the one-billion dollar mark, Herbert Heinrich, research director of Kolmar Laboratories, raises the question whether the industry has really reason to be proud of its progress. In a critical vein, Mr. Heinrich recently told the Chicago Chapter of the Society of Cosmetic Chemists: "The price line has been held in the face of rising prices, at the cost of lower profits, absorption and liquidation of marginal business enterprises, and what is most unfortunate, at the expense of basic research.

"In 1935 the American public spent 1.35 per cent of the money paid for non-durable goods exclusive of soap. This percentage has decreased steadily until it has been between 0.8 and 0.85 per cent for the last six years. This deterioration of the relative position of the cosmetic industry may be a sign of threatening stagnation.

"Actually, prices were not kept at their 1938 level because the consumer demanded it, but because the cosmetic industry had nothing to offer for which it could ask more money. No really new idea has come out of the laboratory. The old formulas have been refined to the n'th degree but they are still based on the old composition. The cosmetic industry as a whole has to wake up to the realization that concentrated efforts are needed right now to lay the foundation for new concepts and basic knowledge."

Tooth Paste Prices Weaken

Tooth paste prices weakened last month when Colgate brought the prices of its chlorophyll tooth paste down to the prices of its regular tooth paste. These price cuts were rather sharp, 63 cents now being the price of the economy size which formerly sold for 89 cents; 47 cents now for the giant size, against 69 cents; and 27 cents now for the large size, against 43 cents.

These sizes may seem confusing unless one realizes the sizes of tooth paste seem to have followed the terminology used in the olive business in which Jumbo is the small size, followed by collossal, super-collossal, and so forth.

Whatever the reason for this action on Colgate's part, whether they were losing business to other chlorophyll tooth pastes, or whether they were meeting competitively the entry of Procter & Gamble into the tooth paste field with Gleem, they were not alone in the price-cutting.

Pepsodent also cut prices, but by combination offers rather than by straight cuts. And Pepsodent did not confine its price cuts to the chlorophyll product alone. Pepsodent has offered three two-for-one deals to the consumer, and these are available for both the new flavor white tooth paste, the chlorophyll tooth paste, and the tooth powder. Pepsodent says that these three offers "give dealers a chance for a pre-tested, fast-moving spring promotion. The offers as explained by Pepsodent, are:

A 94 cent value with the purchase of two giant tubes of Pepsodent White for 69 cents. The combination of a large 43 cent size of Pepsodent Chlorophyll packed with a giant size, both for 69 cents, offers consumers a 43 cent saving. And to introduce the zestful new flavor to powder users, a large size can of Pepsodent Tooth Powder free, with a giant size can, is being packaged in a special boot container. If the customer is not satisfied, the unused giant can may be returned to Lever Brothers for a full refund of the 47 cent purchase price.

Dooley Hair Preparations

Paul R. Dooley, Inc., and Dooley Hair Experts, Inc., of San Diego, Calif., must stop representing that their preparations for the hair and scalp have any effect in preventing or overcoming baldness or hair loss, according to a consent order of the Federal Trade Commission. Also stopped are claims that the products cause hair or scalp health to be regained in all instances; cause "fuz" or thin hair to be replaced by thick hair; prevent or overcome all scalp disorders; or cause the permanent elimination of itching of the scalp, dandruff, dryness or oiliness of the scalp. Other claims stopped are that baldness is usually caused by infection, local disease of the scalp, neglect or abuse; that the formulas used are exclusively their own or are unknown to, or cannot be used by others; or that officers or employees

of the corporations have had competent training in dermatology or other branches of medicine having to do with the examination and treatment of scalp disorders affecting the hair, or that they are trichologists.

Isoniazid and Tuberculosis

An indication of the value of isoniazid in the treatment of tuberculosis appears in the report of the Department of Hospitals of New York City which report states that overcrowding in the City hospitals declined more sharply in 1953 than in any year since 1949. Bed occupancy rate for 1953 is given at 93.1 per cent, compared with 96.4 per cent in 1952, and 100.8 per cent in 1949. The acceptable standard is given as 85 per cent. With reference to isoniazid, Acting Commissioner of Hospitals Maurice H. Matzkin stated that the continued success with isoniazid on both ambulatory and hospitalized TB patients "seems to indicate a definite trend toward hospital stay." He noted also that, for the first time in the history of the department, the tuberculosis census had decreased month after month. In December 1953, he reported, there were 4,951 TB patients in the hospitals, compared with 5,423 in February 1953.

Coumarin Outlawed in Food

Any food product containing coumarin is adulterated within the meaning of the Federal Food, Drug, and Cosmetic Act, according to a Food and Drug Administration ruling of March 5. The FDA states that it adopted this policy on the basis of pharmacological investigations conducted by manufacturers of coumarin which showed it has toxic properties. Coincident with this announcement, FDA approved an amendment to the definitions and standards of identity for cacao products to prohibit the use of coumarin as an optional added substance for flavoring purposes.

Pharmaceutical Outlook

Sales of pharmaceuticals at manufacturing level should exceed $1.5 billion by 1963, as compared with sales of $838 million for 1953, according to Dr. Frank G. Boudreau, executive director of the Milbank Memorial Fund. This is a conservative estimate, and is contingent upon a continuation of a goodly percentage of sales being spent on research, Dr. Boudreau told the National Vitamin Foundation.

From 1935 to 1945 the pharmaceutical industry increased expenditures for research 300 fold, Dr. Boudreau said. In pointing out that the pharmaceutical industry spends from four to 5½ per cent of sales on research, he expressed the belief that this industry spends more on scientific research than any other industry.

Award to Smith, Kline & French

Smith, Kline & French Laboratories were awarded a special scroll award for outstanding contribution to medical education by the Michigan State Medical Society in Detroit. The award was given "in appreciation and recognition of its contribution" to postgraduate medical teaching through the medium of color television. The Michigan Clinical Institute meeting was the 55th meeting at which the SKF Unit had telecast clinics and operations direct from hospital to assembly hall over a closed circuit since 1949. During this time, more than 276,000 doctor visits have been paid to SKF programs. At the Michigan Clinical Institute, fourteen clinics and three operations were shown in daily two-hour television sessions for three days originating in the Harper Hospital. The telecasts were received on a 4½ by six-foot screen, making possible the accommodation of 500 people. The size of the picture is 27 times larger than given by the 12-inch sets previously used.

The scroll, which was presented by Dr. Leroy A. Hull, president of the Michigan State Medical Society, was accepted for the company by Lewis M. Lang, head of SKF Medical Color Television Unit.

Substituting Pharmacists Probated

Six Massachusetts pharmacies have been placed on probation for one year by the Massachusetts Board of Pharmacy after the Board found them guilty of substitution in the filling of prescriptions. The Board summoned the pharmacies after Abbott Laboratories charged the stores with substitution. Evidence was presented to show that the pharmacies had, on two or more occasions, dispensed something other than Nembutal 1½ grain capsules upon receiving prescriptions calling for this Abbott product. The Board warned the pharmacies that if other violations of the Pharmacy Act should occur, appropriate action would be taken to revoke, rather than merely suspend, the license of the violator.

Brand Name Drug Retailers

Cunningham Drug Stores, Detroit, and Petty's, Newark, N. J., have been named Brand Name Retailers-of-the-Year in the drug store categories of the annual nation-wide competition sponsored by Brand Names Foundation. The Detroit firm received top honors in Class I (annual sales of $1 million or more) drug store section of the competition. Petty's was awarded the Brand Name Retailer-of-the-Year title in the smaller stores section. The judging committee also awarded Certificate of Distinction to four additional stores in each drug store classification. In Class I stores named included: Katz Drug Company, Kansas City, Mo.; Read Drug and Chemical Co., Baltimore; People Drug Stores, Washington, D. C.; and Horton & Converse Co., Los Angeles. In Class II were named: Dunnington's, Brockton, Mass.; Bruno Drug Co., West Columbia, Texas; Shaw & Ott Drug Co., Mansfield, Ohio; and Charles H. Zimmerman Pharmacy, St. Louis.

Cosmetic Chemists Program

Enzyme Inhibitors for Dentifrices will be the lead off paper at the technical meeting of the Society of Cosmetic Chemists, May 14, at the Hotel Biltmore, New York. This paper will be presented by Dr. R. S. Manly, of Tufts Dental School, who has been conducting studies in this field for some time.

Other papers to be presented at this meeting are: Theory of Viscosity, by W. B. Brookfield, Brookfield Engineering Laboratories; What Management Expects of Research, by Ray Stevens, Arthur D. Little, Inc.; What Research Expects of Management, by Walter Hamburger, Fabric Research Laboratories; Calculation

of HLB of Polyethylene Glycol Fatty Acid Esters, W. C. Griffin, Atlas Powder Company; The Chemistry of Disulfide Linkage, by Gerald Oster and N. A. Rosenthal, Polytechnic Institute of Brooklyn; Lipsticks: Their Formulation, Manufacture and Analysis, A. L. Fishbach, Oxzyn Company; Experiments of the Epidermis of Animals of Value to the Cosmetic Chemist, E. O. Butcher, College of Dentistry and the Graduate School of Arts, New York University.

Plant Inspection Decision

The fact that manufacturers have some rights as far as factory inspection is concerned was recently illustrated in a case in which the Food and Drug Administration instigated prosecution against a manufacturer under charges based primarily on information gathered during the course of factory inspections.

The inspector made two separate visits to the plant. The owner was present during the first visit, and according to the Court opinion, the manufacturer was very cooperative and granted the inspector many privileges. But then the inspector returned on another occasion when the owner was not present. On this second visit, the owner claims that the inspector took undue advantages of the situation, such as the taking of pictures. The man in charge of the plant during the owner's absence did not have authority to grant any such privileges. The manufacturer filed a motion requesting that the Government be denied the right to use the evidence obtained during the inspections.

The court ruled, in substance, that due to the great cooperation on the part of the manufacturer, information obtained during the owner's presence could be used, but it would deny the Government the right to use two exhibits, apparently the pictures taken, without authority, during the absence of the owner.

Parke, Davis Facts

Anyone who has thought that Chloromycetin is a dead item should consult the 1953 financial report of Parke, Davis & Company, which shows the 1953 volume in this item to be $25,904,017—a volume in one item as large or larger than the total volume of a good many pharmaceutical houses. It is true that the volume is only half what it was in 1951 when sales of this drug totaled $52,413,475, but the drug seems to be very much alive. The attempt to tie up Chloromycetin with aplastic anemia occurred in 1952. Sales for that year fell to $47,071,564.

Sales of other antibiotics for 1953 were also half what they were in 1951, but a very large part of this can be credited to price declines. Sales of these items for 1953 totaled $7,302,424, compared with $8,327,946 for 1952, and $15,503,923 for 1951.

Sales of two other classifications of products are given in the report these are general pharmaceuticals and surgical dressings. General pharmaceutical sales advanced to $70,692,073 in 1953, compared with $65,562,290 in 1952, and $64,226,210 in 1951. Surgical dressing sales changed very little, totaling $5,953,565 for 1953, against $5,351,661 for 1952, and $5,992,923 for 1951.

T.G.A. Meeting Planned

The opening session of the annual meeting of the Toilet Goods Association, to be held at the Waldorf-Astoria Hotel, New York, May 11, 12, and 13, will consist of the President's Address, the Report of the Treasurer, the Report of the Executive Vice-president, and the election of officers. This will be followed by a luncheon at which the Welch Packaging Awards will be presented, as well as the Industry Golf Trophies.

On the afternoon of the first day, two panels, one consisting of women and one consisting of men in similar executive positions, such as buyers, advertising copywriters, salesmen demonstrator, etc., will discuss Marketing and Merchandising.

The second day will open with a discussion of the Federal Trade Commission by a prominent industrialist not engaged in the cosmetic industry. This will be followed by an address by Edward F. Howry, Chairman of the Federal Trade Commission. The luncheon will be addressed by Griffing Bancroft, CBS Reporter, Washington. The afternoon session will be closed to manufacturers.

The meeting of the Scientific Section of the Association will occupy the third day. The program has been arranged jointly by the American Society of Perfumers and the Scientific Section of the T.G.A. The program follows:

New Lauryl Alcohol Sulfates, by Serge Giers, executive vice-president and Technical Director, American Alcolac Corporation; Installing Statistical Controls in Toilet Goods Manufacturing, by Martin A. Brumbaugh, Bristol Laboratories, L. B. Dobie and W. C. Frey, Bristol-Myers Products Division; The Acid Mantle of the Skin, by Otto Jacobi and Herman Heinrich, Kolmar Research Center; Recent Progress in Odor and Olfaction-Possible Mechanisms, by Paul G. I. Lauffer, George W. Luft Company; Some Aspects of Soap and Detergent Perfumery, by E. D. Kilmer, Lever Brothers Company; Perfuming Aerosol Products, by R. A. Foreman, Aerosol Consultant, and Raoul Pantaleoni, van Ameringen-Haebler, Inc.; Preliminary Investigation of the Application of Infrared Spectroscopy to Perfume Materials, by Ernst T. Theimer, van Ameringen-Haebler, Inc., and Stanley Freeman, Benzol Products.

At the close of the morning session, a vice-chairman of the Scientific Section will be elected, and at the luncheon, the Annual CIBS Award will be presented by William Fairhurst, president of that organization.

Merck Products to Sharp & Dohme

Merck & Co. has been engaged in turning over to the Sharp & Dohme Division of the Company sales of so-called "specialties" which were sold by Merck before the acquisition of Sharp & Dohme. This includes Cortone, the Merck brand of cortisone, as well as all other finished products. This means that the Sharp & Dohme Division will gain between thirty and forty million dollars in sales above the volume of that division when it was taken over. This involves the shifting of personnel within the company as well as many other problems. It also means that the business of the Sharp & Dohme Division will put that division in the sales

brackets of many of the leaders in the pharmaceutical industry. And it also means that the business done by Sharp & Dohme with wholesalers and others will be of much greater importance to these distributors.

Chemicals and Mental Disease

In a recent address before the board of directors of Stanford Research Institute, Dr. Vannevar Bush, had the following to say about chemical control of mental disease:

"The day is coming, is here in certain minor ways, when chemical control of mental disease may be a powerful weapon in the war against man's ills. It could empty many, perhaps most, of the hospital beds of the country devoted to diseases of the mind. This is in some ways far more important than the attack on cancer and heart disease, more important even than geriatrics, for sound mental and emotional life, happy constructive life, is far more important than mere length of years. True, we would press every effort to remove pain and distress; the modern approach to narcotics is, for example, a very salutary thing; but solution of the problem of the mentally unhinged, by chemotherapy and in other ways, opens up more attractive vistas. Still, we should not overlook the fact that chemical control of mental disease also implies chemical control of the emotions, and that this can have its appalling dangers. We had best have our governmental systems in very stable form indeed before such things become possible. A world in which chemical additives to the diet would produce docility, or the reverse, may produce problems beside which control of atomic energy is relatively simple"

Fair Trade Developments

Fair trade is not a bed of roses. While a favorable decision was won in a Federal District Court concerning the validity of Indiana's Fair Trade Act, adverse lower court decisions were handed down in Nebraska, Arkansas, and Delaware. The Nebraska, Arkansas and Delaware decisions will have to be acted on by the Supreme Courts of those states. In Florida three cases are pending before the Supreme Court of that State. One is from an unfavorable decision, and another is from a favorable decision.

Trading stamps, coupons, premiums, etc., are being increasingly used to circumvent fair trade. A suit based on this method was won for fair trade in Rochester by four druggists who initiated the suit. In Roanoke, Va., Bristol-Myers is bringing suit on this point.

Furthermore, fair trade laws are said to be spurring the growth of discount houses which are in excess of 10,000 in this country, and which are claimed to be doing an annual volume of at least $10 billion, which is as much as the 7,000 department, chain, and specialty store members of the National Retail Dry Goods Association do combined. The NRDGA claims that present methods of enforcing fair trade laws are ineffectual because the discounter makes capital of suits against him to advertise his lower prices. One idea under consideration is attempt to amend fair trade laws so that they are similar to the liquor laws which make violations a criminal offense. In the meantime it is proposed that retailers cooperate with manufacturers who police their fair trade contacts and deemphasize the merchandise of those who don't. Unless an item is displayed, it is contended, the brand is soon forgotten by everyone concerned, including the bootleg seller.

Boric Acid in Canada

While the Food and Drug Administration recently gave boric acid a clean bill of health so far as its use in powders is concerned, the product has been banned from Montreal and Toronto children's hospitals. The action at Children's Memorial Hospital in Montreal and at the Toronto Sick Children's Hospital results from reports by Dr. Richard B. Goldbloom and Dr. Alton Goldbloom that 110 cases where applications of boric acid or powder containing it had brought harmful results.

N. J. Blue Cross in Red

The Hospital Service Plan of New Jersey—the Blue Cross of that state—went in the red to the extent of $2 million for 1953. Higher hospital costs and an increase of $520,000 in administrative costs were the reasons given for this second consecutive annual deficit. Rates were sizably increased at the end of 1953, but these were not reflected in the 1953 statement. The plan paid out $25,314,613 to participating hospitals during 1953 and spent $2,087,177 for administrative expenses. In 1952, the plan paid hospitals $20,838,177 and spent $1,517,764 for operating expenses.

Colgate-Palmolive Injunction

Colgate-Palmolive Company, Jersey City, was granted a temporary injunction last month in the Superior Court of New Jersey, Chancery Division, enjoining a firm known as Colgate Laboratories, with a Jersey City post office box number for its address, from using the Colgate name. The company had advertised a product called Stermalan for the treatment of psoriasis.

Government Research Expenditures

Government research and development expenditures are now more than $2 billion per year. President Eisenhower, who last month ordered the National Science Foundation to survey the Government's research and development program, said that "more than half of all the investment in the nation today for scientific research and development is being made by the Federal Government."

"In large measure these Federal funds are paid to industry and educational institutions for the conduct of research and development projects," he added. Thus our Federal policies and practices regarding research and development are felt immediately and substantially by industry and our educational institutions.

"More than 90 per cent of this Federal support is presently going into applied research and development. This is practical application of basic knowledge to a variety of products and devices. However, only a small fraction of the Federal funds is being used to stimulate and support the vital basic research which makes possible our practical scientific progress. I believe strongly that this nation must extend its support of research in basic science."

The Search for Adrenal Hormones

by Norman Applezweig, CONSULTING BIOCHEMIST.

Thirty crystalline steroid compounds have now been isolated from mammalian adrenal glands. While many of these compounds have been shown to possess some physiologic activity, only three are believed to have biologic significance and are therefore considered to be "true hormones." Whether the others are intermediates or break-down products resulting from the metabolism of the hormones or whether they are artifacts representing structural alterations produced by the conditions of isolation, remains a mystery.

The hunt for the true hormones of the adrenal gland represents one of the most fascinating chapters in the annals of biology. Because the adrenal gland, through its elaboration of these complex chemical structures seems to influence so many diverse body functions, the mystery of adrenal hormone physiology has, like a carrot at the end of a stick, served to lead some of the most brilliant scientific minds of our time on a seemingly endless chase. In an effort to solve the perplexing problems, some truly herculean feats have been performed by physiologists, biochemists and organic chemists. Techniques have been devised which permit the bio-assay isolation and characterization of microgram quantities of active material. By means of perfusion, microbiologic syntheses, radioactive tracers and paper chromatography, tremendous insights have been gained concerning the origin, metabolic pathways and inter-relationships of the various compounds derived from the adrenal cortex. But what is the true state of affairs in the healthy adrenal gland, and what are the qualitative and quantitative factors involved in adrenal function, still eludes precise definition. It is hoped by many that the last of the crystalline compounds to be isolated, may well hold the key to many of the questions which are thus far unanswered. If this is so, then the chapter of adrenal cortical research may well be the most glowing one to have been written in the history of physiology.

Crude adrenal extracts were shown in 1927 to possess the ability to maintain life in adrenalectomized animals (animals whose adrenal glands have been removed by surgery). From such extracts, crystalline steroids have one by one been isolated by indominitable investigators, such as Reichstein, Kendall, Wintersteiner, Pfiffner and others. Great rewards for this laborious effort have already been reaped.

Cortisone and hydrocortisone, two of the crystalline steroids isolated from adrenal glands have been shown to possess remarkable anti-inflammatory properties which permit them to be used as valuable therapeutic tools. Desoxycorticosterone, or DOC, a compound first synthesized by Reichstein and later shown to be present in minute amounts in gland extracts was found to have great potency in maintaining adrenalectomized animals and thus was able to be put to life-saving use in Addison's disease where the human adrenals are incapable of functioning.

Of even greater importance, however, have been the revelations concerning the possible biologic role of adrenal steroids. Among the compounds isolated, some, like cortisone and hydrocortisone, which have an oxygen

function at the 11 position, were found to exert profound effects upon carbohydrate metabolism. These are concerned mainly with the conversion of protein to glucose and have been designated as glucocorticoids. Others, which are non-oxygenated, like desoxycorticosterone, seem to control electrolyte or mineral metabolism and are referred to as mineralocorticoids. There is consistent evidence that each of the adrenal hormones has some influence on nearly all metabolic processes of the body and the overall effects of the hormone mixtures produced by the normal adrenal gland may be different and hardly predictable from the actions of individual steroids.

Little by little, the relationship of structure to function has been pieced together so that the isolated compounds could be unscrambled, classified and characterized. It soon became clear that compounds such as these which could influence metabolic processes so profoundly, must, directly or indirectly, play a vital role in regulating the life and function of every cell in the body.

The elucidation of these startling facts, in some cases coincided with, and in other cases, inspired corollary observations leading to theories concerning the biologic role of the adrenal cortex as a homeostatic mechanism. It has been suggested that adrenal cortical function might be divided into "stress function" and "steady state function." In the former, glucocorticoids have been shown to be secreted at a high rate in response to pituitary stimulation, while the "steady state" function could be mediated by a slow rate of secretion of glucocorticoids or compounds present in the amorphous fraction, and may be independent of the pituitary gland. The adrenal glands thus function to maintain the integrity of the organism, permitting it to adjust to, and defend itself against changing or hostile environment. If this hypothesis can be fully confirmed, and all of the ingredients of the homeostatic mechanism identified, then the long-sought-for prize will be at hand—we should be able to regulate and balance the various factors which control body metabolism in health and disease.

But each bit of knowledge extracted from the adrenal cortex has been only a partial answer and as a result, has been more tantalizing than satisfying. Adrenal researchers have thus been forced to return again and again to their starting material to try to find out if they have overlooked anything. In recent years they have concentrated their attention again on the "amorphous fraction" to hunt for the missing link of adrenal physiology.

Interest in the amorphous fraction of the adrenal cortex dates back to the early days of adrenal hormone research. As early as 1935-1936, Wintersteiner and others noted that the factors retained in the water soluble amorphous residue, after removal of crystallizable substances by solvent extraction, were highly potent with respect to life maintenance in the adrenalectomized animal. Like desoxycorticosterone, the amorphous fraction was found to be relatively inert with respect to carbohydrate metabolism.

As much as 50 per cent of the activity of the original tissue was found to be retained by the amorphous fraction when measured by life maintenance in the adrenalectomized dog. When compared per unit weight it was suggested that the amorphous fraction might be seven to 15 times as active as desoxycorticosterone and 200-500 times as active as cortisone.

With the introduction of improved methods for assaying the adrenal hormones and the greater availability of crystalline steroids, this early work was confirmed and extended so that in 1952, Ingle et al, using the "work test" with continuous intravenous injection of hormones, was able to state that "non-crystalline fractions of adrenal cortex extracts have been prepared which have greater biologic activity per unit weight than does any known adrenal steroid." The life-maintaining potency of the amorphous fraction was found by Ingle to be much greater than that of 17-hydroxycorticosterone.

In the earlier days, with a paucity of information about the nature of the crystalline steroids it was permissible to speculate that the activity of the amorphous fraction was due to a mixture of known steroids together with impurities. In recent years, however, it has become increasingly clear that available knowledge could not account for this activity and that still unknown factors, which have thus far eluded isolation, must be looked for.

The Electrolyte Controlling Factors

The importance of the adrenal cortex in water and electrolyte metabolism was the first of the hormonal functions recognized in the early studies of adrenal physiology. Most cortical hormones and particularly DOCA, cause retention of sodium salts. This leads to osmotic retention of water and increased extracellular fluid volume. The fact that the cortical hormones cause sodium retention, led to the idea that their major action on water metabolism was water conservation. It has more recently become clear, however, that a definite function of cortical hormones is also to stimulate water diuresis. Thus it appears that the cortical hormones may cause either water retention or water loss, depending upon the equilibrium which is established between the diuretic and the sodium retaining effects.

Hartman and co-workers, as early as 1937, showed that a separate sodium factor is present in cortical extracts and that it possesses some interesting properties. Later he described methods for fractionating the extract into a "*Na* factor," and a factor for life maintenance "Cortin." The "*Na* factor" had the ability to keep adrenalectomized cats alive for considerable periods, although their reactions were not normal. "Cortin" caused a potentiation in the effect of the "*Na* factor." When "Cortin" was given alone it kept adrenalectomized animals alive indefinitely but the

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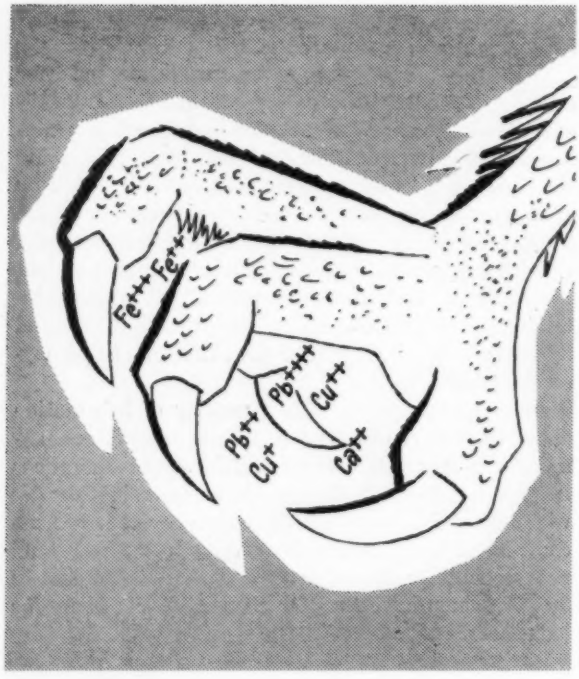

Chelation

KEY TO METAL ION CONTROL

by Martin Rubin

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Why be concerned or interested in the control of metal ions? The presence or absence of metal ions is known to influence the rate, direction and yield of products in chemical reactions. Production "bugs" sometimes turn out to be traces of metal ions introduced inadvertently into reactions from contaminated ingredients or by corrosion of equipment. Development of "off colors," "off flavors" and strange odors in finished products may come about through the catalytic action of metal ions in solution. Deterioration and decomposition of sensitive drugs and formulations may be accelerated by metal ions. Clouding by precipitation of insoluble metal compounds destroys the shelf life of liquid soaps, shampoos, rinses and similar preparations. Aside from their importance in all these technological problems that are part of the every-day life of the drug and cosmetic industry, metal ions play a basic and vital role in the function in vivo of many of our "wonder drugs." In addition the precise control of metal ions in solution, possible today through chelation, has provided new leads for the development of new drugs. Those who are engaged in production, development, research, sales and management in the drug and cosmetic industry need to know about the potentialities of chelation.

The term "chelate" derives from the Greek for the word meaning "claw." Chelating agents act as chemical claws in enclosing and holding fast to metal ions. The unusual strength or "stability" of this type of metal organic combination stems from the simultaneous attachment by electron bond sharing of the metal with several atoms of the surrounding chelating molecule. The more readily this type of combination forms between a metal ion and a chelating agent the fewer the metal ions that will be found "free" in the surrounding medium or the higher will be the "stability constant" or the "pM" value* of the chelating agent. The readiness of metal chelate formation is a function of the particular metal involved, the nature of the medium and the structure of the chelating agent. By suitable balancing of these factors quantitative control of the metal ions in a solution becomes possible.[1]* It is our purpose to illustrate how this developing science is providing new answers to old questions in the drug and cosmetic industries. Instead of trying to cover in a short paper the whole field of chelate applications we will attempt to outline the principles of this approach as they have developed in the use of a small group of chelating agents of similar structure.**

This era of the spectacular medical advances achieved by the development of specific chemotherapeutic agents has obscured the basic fact that the early living forms grew up and learned to use and adjust themselves to an aqueous medium containing metal ions in solution. The concentration and relation of these ions were of primary concern in the growth, irri-

*Defined as 1 log concentration metal ion in equilibrium with the chelating agent in a given medium.

**"The Versenes," Beraworth Chemical of Framingham, Mass.

tability and life continuation of the organisms in this aqueous medium. That we walk on land rather than swim in the sea as our usual habitat has not changed the fact that each of us is a contained aqueous medium whose metal ion concentrations and relations are so beautifully regulated and controlled that they are taken for granted except when in disorder. In the regulation and use of metal ions in living processes the body has developed as one of its mechanisms of control its own system of chelating agents of variable degree of metal ion binding abilities. In order to control and direct metal ion changes in vivo we need to work in and around these processes in which the sugars, lipids, amino acids, proteins, vitamins and hormones have involved functions.[2]

At the present time the metal ions most amenable to chelate control are those of the polyvalent group. In the body the divalent ion calcium is present in major extent in the blood fluids. When introduced into the blood by injection the acute action of a soluble chelating agent, such as ethylene - diamine - tetraacetic acid (EDTA), Versene, is to combine with the blood calcium and convert it to the non-ionized calcium chelate form. Thus the physiologically important blood calcium is rendered unavailable to the organism. If large quantities of the chelate be given rapidly enough the animal will expire in hypocalcemic tetany.[3] In humans there are times, as in periods of bone destruction due to cancer, in Vitamin D poisoning, and in parathyroid gland disease when the blood calcium level builds up to points where damage may result to vital organs such as the kidney. Administration of EDTA in such acute situations is followed by a controlled decrease in blood calcium levels.[4] While these effects of the chelating agent are transient they may be medically useful in carrying the patient over a hypercalcemic crisis period or in preparation for forthcoming surgical intervention. The temporary action of the compound in this circumstance is due to the rapidity with which the mineralized skeletal system replaces the depression of the calcium level in the circulating fluids.[5] Application of this method of controlled bone lysis has been useful for the removal from bone to the circulatory system where they can be more readily controlled of bone deposits of foreign metals such as lead and various of the radioisotopes.[6] Deposits of calcified tissue in various parts of the body have been removed by application of EDTA. For example, exploratory studies have shown that kidney and bladder stones may be dissolved by irrigation with this chelating agent.[6] Unfortunately the high incidence of local irritation in the usually irritated kidney has put sharp limits on the applicability of this treatment in its present form. Dosage modifications and the use of alternate chelating compounds show promise for solution of the problem. Calcification opacity in the eye has yielded to local irrigation with EDTA solution.[7] Restoration of sight to these blinded patients has often been dramatic. The process of blood coagulation involves the presence of calcium ion. Although removal of calcium ion by EDTA administration in the living animal or human to the point where blood clotting ceases is not a practical form of anticoagulant treatment, the process is very effective as a means of inhibiting the coagulation of whole blood.[8] Use of EDTA for this purpose has provided a single anticoagulant so that blood can be collected in contrast to previous practice without prior decision as to whether it is to be ultimately utilized for whole blood transfusion or for conversion to plasma. The calcium combining ability of EDTA has led to its utilization in a host of minor medical applications.[2] This mild procedure has facilitated the decalcification of bone so that it may be prepared for pathological histological examination. Diagnosis of cancer of the urinary tract by discovery of cancer cells in the patient's urine on microscopic examination has been facilitated by EDTA solution of the urinary mineral sediments that usually interfere seriously with this procedure.

In contrast to the applications of EDTA described above which depend on the ability of the compound to withdraw calcium from its environment and hold it in tight unavoidable chelate combination, the preformed calcium EDTA chelate has no acute actions on the calcium balances in the body. There is possible evidence that the calcium in this combination may be very slowly and gradually released to the organism.[9] If this turns out to be an accurate reflection of the facts then this will be a significant milestone in calcium replacement therapy. For the first time there will be available a depot type of mineral therapy. The unpleasant warmth associated with parenteral administration of present calcium compounds and the frequent effect of high calcium ion levels on the heart will have been overcome.

Though the combination of EDTA with calcium is strong in an absolute sense it is weak when compared to the strength of the bonding of EDTA and other metals. Because of this fact the calcium in EDTA combinations will be displaced by almost any metal except other alkaline earths such as magnesium and barium and the alkali metals like sodium and potassium.[10] This physical-chemical property of calcium EDTA has become the basis of a new and highly successful method of treatment of metal poisoning. In acute lead poisoning the injection into the body of calcium EDTA results in the displacement of the calcium in the chelate by the more readily bound lead. The lead EDTA chelate thus formed eliminates the typical toxic effects of lead by holding the metal in the tight inert non-toxic chelate form. The chemical and biological properties of the lead chelate cause the compound to be readily eliminated by way of the kidney.[11] In addition to this treatment procedure for acute lead poisoning the administration by mouth of tablets of calcium EDTA to workers in factories where exposure to lead intoxication is a problem has given every indication that a means of prevention of lead poisoning is at hand. In animals and human studies it has been well established that this type of pretreatment can markedly

(Continued on page 582)

COURTESY RKO PIX

Emollient and Lubricating Creams

by Harry Hilfer

In the cosmetic sense of the words Emollient and Lubricating Creams are usually the same since emolliency is desirable in a lubricating cream. These products should therefore be possessed of functional properties which enable them both to add oil to the skin and at the same time to make the skin soft. The ultimate purpose in so treating the skin is primarily to relieve any tendency towards chapping and consequently by keeping the skin supple to delay the onset of wrinkles. Though this theory may be difficult to prove clinically, a statistical examination of women of the same age who use creams as against those who do not, seems to bear this out, though there is a good deal of argument as to the method of interpreting the results.

The literature leans heavily towards the use of lanolin as the principal agency imparting emolliency and the consumer seems to believe that this is true as is evidenced by the increased emphasis on the inclusion

of lanolin on the label of many of these products now on the market. Lecithin is also mentioned as a good emollient as well as a whole host of oils and fatty materials such as the higher alcohols. In the final analysis, however, and from a purely practical standpoint, the product must be able to convey the idea of emolliency to the user. It is more practical to formulate a product of this type containing only some of the better emollients than to include all and cause the product to be cosmetically unelegant and therefore not salable. For example—cod liver oil is mentioned as a good emollient, but I do not think it is wise to use any significant concentration in a cream unless there is complete assurance against ultimate rancidification.

Another tendency—if only a relatively recent one—is to endow practically all creams and lotions with lubricating and emollient properties. Lubricating and emollient creams were once thought of as fairly heavy products containing large percentaes of oil, and though there are many preparations of this type on the market and some very popular ones—other preparations have begun to appear which are endowed with similar properties but in which the lipoid concentrations have been greatly lessened. I think it best, therefore, to trace these developments to show how the original conceptions have changed.

The first of the lubricating and emollient creams were the common beeswax—borax emulsions containing large quantities of oil and perhaps some lanolin to enhance the emolliency. During this same period, hydrous lanolin was sold as such for the same purpose. The cold cream type—particularly the water-in-oil cream was the more popular since it was possessed of the greater elegance. Absorption bases, originally introduced from Germany, began to appear and many of these preparations reached great popularity. Indeed the Nivea cream—which was essentially an absorption base cream made from a wool fat alcohol—petrolatum mixture emulsified with water—became almost internationally known. Creams of this type are still popular and are still being produced in good sized quantities, but I believe they are gradually being supplanted by products which on the surface seem to possess the same properties, but offer more in addition such as the Hormone Creams.

With the advent during the past ten ten years of large numbers of synthetic surface active agents, a gradual drift has taken place towards the reformulation of the older preparations. This change has not been announced as such but rather as the advent of a new preparation, possessed with properties not possessed by the older ones. Closer examination, however, will show that the claims are much the same with the possible addition of another. There no longer seems to be as much emphasis on the terms associated with lubricating and emolliency creams—such as texture creams—and the newer products are all said to be possessed of lubricating and emollient properties. Obviously if a woman uses a hormone cream where the instructions indicate application before retiring, she cannot use a lubricating cream at the same time. She can and does use a cleansing or cold cream, however, which is applied and then removed, so that she could subsequently use the hormone cream.

The average woman now uses a large number of different types of preparations, which are kept on the face during the day. Some sort of powder base is usually used before application of make-up. These often take the form of a vanishing cream but there has been a growing tendency towards the use of make-up lotions of the emulsion type carrying pigments and powders in the vehicle. Such a product is capable of large enough quantities of oils, lanolin and other emollients so that it could serve not only its primary function as a color additive but as a lubricating and emollient cream as well. The thickness of the oil film on the face is not as important as the fact that there is a film there.

There has been a great deal of discussion concerning the pros and cons of the use of mineral oil in cream formulation in general. At the present time, however, there has not been any concrete evidence showing harmful effects topically because of its use in creams, but I have no desire to call its critics wrong. The fact remains, however, that because it is so inert chemically it is probably as good a protective agency against moisture as is possible to use. Since the lubricating cream is supposed to protect the skin against chapping, I believe that mineral oil is indicated. Olive oil and almond oil may possess better emollient properties but there are always present the dangers of rancidity if present in any significant concentrations. Mineral oil, therefore, is the oil most commonly used. Emolliency may be enhanced by the addition of lanolin and, in fact, probably is capable of greater cosmetic elegance than are the vegetable oils by themselves.

Lecithin is also in fairly common use, but more because of its surface active properties rather than because of the emolliency it contributes to the preparation. It is used in small concentrations, and for this reason, emolliency effects due to its presence are negligible. The reason for the small concentrations used is its inherent odor which would be difficult to mask if the concentration were greater. Some of the lecithin derivatives, however, have obviated this objection and may therefore be used in fairly large concentrations without any odor problem interfering. There are indications that these derivations may assume increasing importance in the future as emollient agencies. Certainly soya bean lecithin from which these derivatives may be made is in plentiful supply and quite cheap. The phospholipids in general would seem a happy choice since they play so important a part in the metabolism of the human organism.

There are in addition an increasing number of surface active agencies such as glyceryl monostearate, cetyl and stearyl alcohol among others. By their use it is possible

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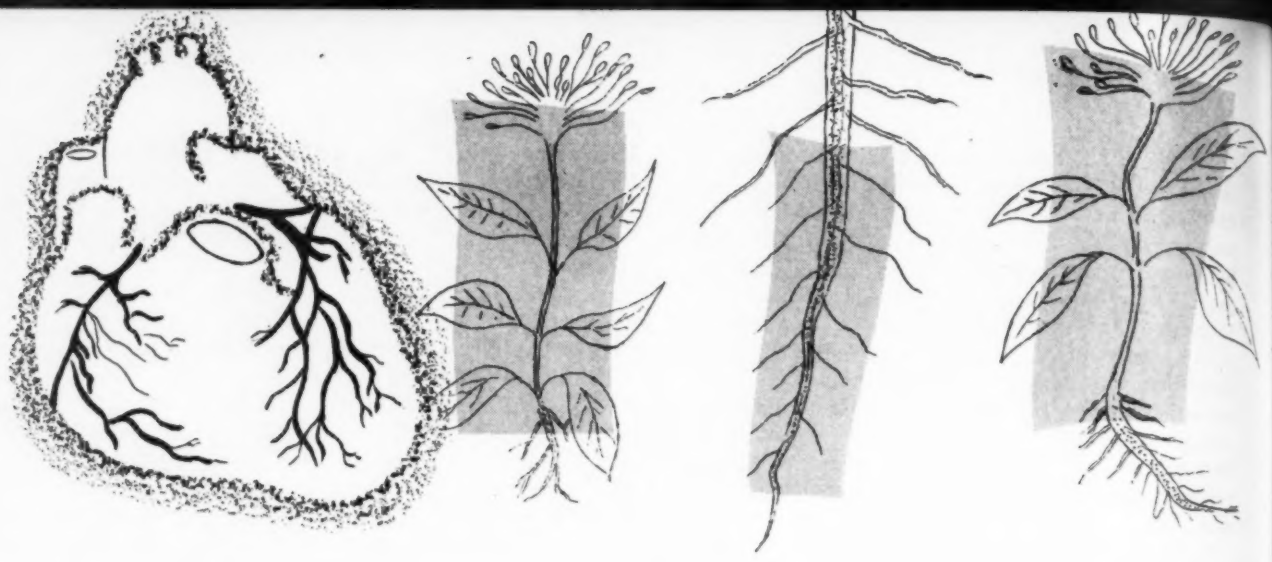


Rauwolfia Serpentina

by Milton A . Lesser

In laboratories and clinics throughout the country, keen interest is being shown in an ancient drug from India called Rauwolfia serpentina. Already a number of products containing the powdered whole root of this plant or its alkaloids are being offered to American physicians. They are finding that these preparations of Rauwolfia are valuable adjuncts in the treatment of hypertension. In addition to its use in this treatment of high blood pressure, the drug may also have a role in the alleviation of other conditions.

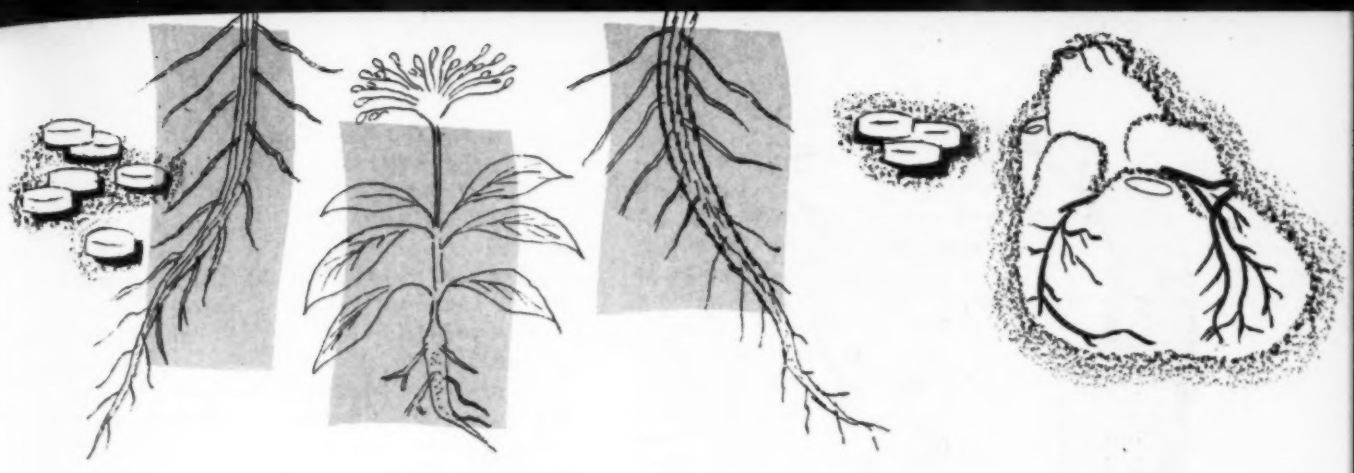
According to Indian medical history, Rauwolfia has been used for centuries in the treatment of a variety of disorders. The Crude drug has long been administered to patients suffering from insanity, epilepsy, insomnia, hysteria and eclampsia.[1] The older literature describes the drug as a fever-reducing medication, as a remedy for snakebite, and as a cure for dysentery and other painful intestinal affections.[2] An Indian psychiatrist[3] has recently reported that good results were obtained in mental cases with a botanical drug mixture containing Rauwolfia serpentina.

An interesting indication of the status of this drug, in India is shown in the fact it was used by Mahatma Gandhi to overcome his nervousness and to help him obtain a good night's sleep. The extracts were especially prepared for the Mahatma by one of India's best known pharmacologists.

Despite this background of wide usage, current interest is centered largely about the drug's action in hypertension. This interest is of comparatively recent origin; going back to the early 1930's when several Indian research workers reported that Rauwolfia serpentina was valuable as a hypotensive.[2] Although other Indian workers[4,5] have since written on the use of the drug to combat high blood pressure, the first comprehensive American report on this application did not appear until early in 1953. This publication, by Wilkins and Judson,[1] further sparked interest in the potentialities of Rauwolfia and increased efforts toward a clearer understanding of its action.

Rauwolfia serpentina is a large climbing or twining shrub growing in India, Pakistan, Burma, Siam and Java. The plant is rather widely distributed in India, especially in the sub-Himalayan areas and in the plains near the foothills. At present, India is the chief source of the botanical, the roots of which contain the active medicinal principles.

A number of workers have made chemical investigations of this drug.[6] Besides isolating several alkaloids, they have found that the roots also contain oleo-resins, sterols, unsaturated alcohols, oleic acid, fumaric acid, glucose, sucrose, an oxymethylanthraquinone derivative, a fluorescent substance and mineral salts. Although the alkaloids are recognized as the main active components of the roots, Gupta and his associates[6,7] reported in 1947 that a purified resin produced sedative and hypnotic effects in experimental animals. Investigations into the composition of the roots, especially with respect to the isolation of alkaloids, has been stepped up during the last few years.



As with many other botanical materials, the composition of the roots of Rauwolfia serpentina will vary to some extent, not only from area to area, but even from season to season in plants gathered in the same area. In 1939, for example, Siddiqui[8] reported that the roots of the Dehra Dun variety of the plant differed in their alkaloidal contents from the roots of the same species growing in Bihar. In subsequent studies on the pharmacological action of the alkaloidal extracts, Kapar[9] found that the extract from the Bihar variety is more toxic than that from the Dehra Dun variety. From such data, it is apparent why whole root preparations or total alkaloid mixtures must be carefully blended and standardized to assure uniform therapeutic action.

Rauwolfia serpentina is a member of a fairly large group. As noted by Youngken,[10] the genus Rauwolfia comprises about 131 valid specimens which are distributed in the tropical regions of both hemispheres. Eight of these species are said to occur in India.

Many of these members of the Rauwolfia family are also under investigation. One reason for such studies lies in the possibility that other Rauwolfia species may yield alkaloids like those found in Rauwolfia serpentina. Another important consideration is the use of these other species as adulterants for Rauwolfia serpentina. In a comprehensive pharmacognostical study, Youngken found that the chief adulterant and substitute in commercial lots of Rauwolfia serpentina is the root of Rauwolfia canescens, which grows near the serpentina plant in India. Occasionally the roots of three other members of the Rauwolfia family served as adulterants.

In November of last year it was reported[2] that 12 American drug companies were marketing or planning to market products derived from Rauwolfia serpentina. That number has probably increased. Of course Rauwolfia preparations have long been available in other parts of the world. In some instances, standards have been set up for some of these products.

This is the case, for example, in the data provided by the Indian Pharmacopoelial List of 1946. Here, under the title, Rauwolfia, the drug is described as consisting of the dried roots of Rauwolfia serpentina and containing not less than 0.8 per cent of total alkaloids. Information is also given on Rauwolfia preparations, such as the liquid extract, dried extract, and tincture.[10]

The British Pharmaceutical Codex (B.P.C.) of 1949 provides a similar standard and offers a macroscopic and microscopic description of the dried roots. Also pertinent is a statement issued by the Council on Pharmacy and Chemistry of the American Medical Association.[11] In a report on nomenclature decisions of the Council it was stated that rauwolfia had been recognized as the generic name for the powdered whole root of Rauwolfia serpentina; Squibb's Raudixin being the brand name accepted by this group.

In a later report, the Council[12] recognized alseroxylon as the generic name for the fractionally purified extract of Rauwolfia serpentina. This is represented by Riker's Rauwiloid. Alseroxylon is also available in combination with veratrum viride and with hexamethonium, both of these agents being active hypotensives.

The same Council report established reserpine as the generic name for the pure form of that alkaloid as derived from Rauwolfia serpentina. Ciba's Serpasil is given as an example of a recognized brand-name product of this type. It should also be noted that reserpine has been made available under the Riker label as Serpiloid.

From the foregoing it is evident that three types of preparations from Rauwolfia serpentina are available from American pharmaceutical manufacturers. The first is preparations based on the whole ground crude root. The second is an alkaloidal extract said to contain the several therapeutically desirable principles of the whole root. Third is the single alkaloid, which has been described as one of the most active principles of Rauwolfia.

Various methods of assay have been proposed to assure uniform potency in these products. The B.P.C., for example, cites a gravimetric method for determining the total alkaloids of rauwolfia. The American producer of rauwolfia, taking the view that the whole root pro-

(*Continued on page 589*)

Plant Self-Inspection*

by L. James Graham
BURROUGHS WELLCOME & CO.

Authority to make sanitary inspections in food, drug, and cosmetic plants, without advance notice or permission of the management, appears to have been completely restored by Public Law 217, which President Eisenhower signed on August 17th. Inspectors of the Food and Drug Administration are given, for the first time, a clear, legal, authorization to enter and inspect the plant and products of any firm subject to the Act.

Under the new law, the inspectors are required merely to present their credentials and show written notice of intention to inspect, whenever they enter the premises. The inspectors are already following these procedures. Section 301 of the Law prohibits refusal to permit entry or inspection, as authorized by the new Section 704. Section 704 authorizes the inspection of the following: . . . the "factory, warehouse, establishment, or vehicle, and all pertinent equipment, finished or unfinished materials, containers, and labeling thereon."

The Food and Drug Administration should agree that, in the vast majority of cases of bona fide contamination, the basic reason for this occurrence is the failure of the manufacturer to set up and sustain an operational apparatus for sanitation and housekeeping. If the F. D. A. inspector is astute enough in evaluating deficiencies of a processing plant to sense the lack of organization for good housekeeping and sanitation as the basic fault, his number one suggestion could well be: . . . "Plant requires an adequate management setup to maintain sanitation and good housekeeping." The management, responding to such a stimulus, would relieve itself and the F. D. A. of never-ending trouble, and also assure the consumer of genuine quality. Quick cleanups and temporary efforts at reform after the F. D. A. inspection, no matter how often repeated, are no substitute for an organized sanitary and housekeeping policy and practice.

Few plants have a specialist in sanitation and housekeeping: hence, the need for the creation of a committee within the organization to maintain a self-inspection program in the pharmaceutical plant is great. We of the parenteral drug trade should be the most interested in a sanitation and housekeeping program in our plants from a purely selfish standpoint. The better the sanitation and housekeeping conditions in your plants, it naturally follows, the fewer imperfect products should be found in the final inspection.

This consideration directs us to the economics of a self-inspection program in a pharmaceutical plant. Are you willing to spend from four to six man-hours a month to have a plant that is available for F. D. A. inspection at any time? . . . . that will reduce your accident frequency? . . . increase your production rate and yields? . . . and have working conditions which make for happier employees and, hence, will reduce your labor turnover? The factors mentioned above all enter into the final cost of the products you are trying to sell.

The organization of an inspection committee is the first step in a self-inspection program. The Housekeeping and Sanitation Committee, as it is called in our plant, consists of five members. One of these is the chairman, who is a permanent member of the committee, and four others who serve for a period of eight

*Delivered before the Parenteral Drug Association.

months. The chairman of the committee is the head of the Standards Control Division, while the other four members are chosen from any member of the staff with the rank of supervisor or higher. The size of the committee in any plant would have to be based on the number of cubic feet to be covered by the inspection.

The second step in a self-inspection program is the systematic mapping out of inspection areas. This may be done, as in our plant, by departments; in others, these areas may be mapped out by floors, buildings, or whichever fills the needs of the plant formulating the program. The detailed descriptions of the areas are then distributed to the members of the committee, and from this, the inspector will be able to determine what sections of the plant are to be covered whenever he chooses to make his inspection. His inspection will include all the cubic footage that is in the area—locker rooms—rest rooms—work areas—staircases—elevators —fire doors—and so forth.

The third step in the formulation of a program of this type is to determine the frequency of inspection and when the inspections should be carried out. It may be necessary, during the early stages of this program, to have rather frequent inspections. It is better to have too much coverage than not enough. After the program is in force for a period of time, you might decide that the major faults have been corrected and, as a result, the number of inspections may be reduced and adequate coverage will still be maintained. No advance time need be set for inspections. We have found this better than setting a specific time and date for two reasons . . . 1) The person in charge of the area to to be inspected would have a tendency to police the area just before the inspector would arrive, and 2) the inspector can make his tour when he has the time available, without interfering with his regular duties. At the time of inspection, it may be necessary to talk to the person in charge of the area to obtain further information and clarification of a point in question. This is not a police force, but a committee to help you maintain good housekeeping and sanitary conditions.

The method of reporting the results of the inspection is the fourth step in the formation of a self-inspection program. It may be done, as was done in our case, namely, the first reports were in the form of memorandums sent to the chairman of the committee, itemizing any violations of good housekeeping and sanitation practices. From these reports, you may be able to establish the form you wish to adopt. One of the best guides on such a tour is an inspection check list. A simple check on his list will indicate those items the inspector found to be satisfactory. It may be necessary to take along a scratch pad to jot down recommendations on those items on the list that are not up to standard. Check lists usually are classified like this:

Buildings (*general*): *walls clean, free of "junk"....; windows and skylights clean...; ledges free of bottles, tools, etc.....; signs and fixtures secure....; good light.....*

Basements: *sumps and drains clean....; storage orderly ....; paper, boxes, packing under control....; wiring, piping in repair....; no leaks in tanks, bins, containers.*

Floors: *clean....; aisles marked....; not blocked....; no water, oil, grease....; good repair; free of scrap, chips, materials, etc.....; not congested.....*

Stairs: *treads, rails in repair....; not slippery....; no storage on steps, landings, under stairs.....*

Locker and Wash Rooms: *showers and toilets sanitary ...; locker tops clear....; no waste, oily clothes, papers, etc., in lockers.....*

Benches: *clean....; in repair....; in order....; tools protected.....*

Hand Tools: *clean....; good handles....; sound striking and working surfaces....; sharp....; put away....; not left overhead or under foot....; regularly inspected....; storage space provided.....*

Machinery: *clean....; no oil or coolant leaks....; guards in place....; no hand tools on machines....; drills, cutters properly checked in and out....; no excess stock in process....; stock within space bounds....; grinding wheels clean....; spare wheels racked....; stock containers in repair....; chip brushes used.....*

Stock Material: and *piled safely....; loaded properly on trucks, pallets, etc.....; skids, flats, etc. OK....; unused containers put away....; access to fire equipment....; doors not blocked.....*

Fire Prevention: *smoking rules observed....; grease accumulations (including kitchen hoods) removed....; compressed gas cylinders stored separately....; fire escapes clear, safe....; waste removal prompt....; sprinkler heads operable....; special flammable liquids containers.....*

Personal Protective Equipment: *control and inspection system operating....; all equipment kept clean....; put away ....; work clothing clean.....*

Grounds: *tracks, roadways clear of refuse....; outdoor storage orderly....; no trash piles, combustibles, etc.....; drainage system OK....; fences OK.....*

Now that we have completed the inspection and filled out the report form, to whom should we send the report? It is necessary to send a copy to each member of the committee. On subsequent inspections, any member of the committee will be able to determine whether the things previously reported unsatisfactory have been remedied. A copy should go to the Plant Manager, or some one of administrative authority, for some of the violations may be of the nature that involves some action by a person in that position. For example, insufficient porter service in a given area may require the hiring of another man, or the moving of one man from one place to another.

The appearance of any insects should be considered an emergency, and the chairman should be notified immediately so that a time may be set when the area can be sprayed. Any delay in such an action makes the elimination of these pests more difficult.

M. FRANKEL

Pharmaceutical Competition

While selling competition among pharmaceutical manufacturers is extremely sharp at the moment, research looking toward the discovery of new products continues at an accelerated rate. Therefore, it might be said that competition among these manufacturers is really on two fronts—the marketing front and the research and development front. And leading manufacturers are spending more on both these fronts to maintain their positions in the industry or to climb further toward the top.

On the selling front, detail men constitute the sales force. The number of these is constantly being increased, and manufacturers are most diligent in their efforts to try and improve the productivity of these men. The competition among manufacturers reaches down to these detail men who are in fierce competition with one another to get the time which the doctors give to receiving them. The doctors are so busy today that they have very little, or no time, to spend seeing mere good-will ambassadors or sample dispensers from the pharmaceutical houses. Not that they are loath to receiving the samples, but they merely want them left with their secretaries as the doctors do not want to give any time in return for samples.

The only detail men who doctors want to see are those who can give them valuable information. And this information must be valuable enough to the doctor

so that he is willing to give up time that he could profitably use in seeing patients. However, the problem which a detail man sometimes faces is that the doctor he is trying to interview knows just about all there is to be known about the products of the detail man's house, and is using them when he believes they should be used. Under these circumstances the doctor does not want to waste any time talking to this detail man, even though the doctor might have high respect for the salesman. But the detail man's problem is that he must see this doctor and report on him.

This situation can immediately be recognized as one of the reasons why manufacturers are constantly bringing out new products. If a manufacturer produces a new product of real merit, the detail men of that firm are again most welcome in the doctor's office. Thus the research and development phase of the pharmaceutical manufacturer's business ties in directly with the sales effort.

It must be appreciated that the keen competition for the doctor's time is all part of the great increase in medical care being bought by the people of this country, and of the great increase in the business in prescriptions resulting not only from this increase in medical care, but also from the outstanding discoveries in medicine, most of which have been sparkplugged by the pharmaceutical manufacturers. The increase in medical care has caused the very large majority of our doctors to be extremely busy. This increased medical care and the greatly increased number of specifics for diseases which are now available for control of a long list of diseases, has caused the business of pharmaceuticals to multiply many fold. This has meant increased detail staffs for the large houses whose business expanded greatly, as well as new detail staffs for the smaller houses which did not employ detail staffs and as well as for the new entries in the industry.

The whole upshot of this is that the industry is crowded with detail men who are all trying to see the doctors who, for the most part, have less time to give to the interviewing of these men than they had before the sharp increase in demand for medical care. Before World War II, if we can go back that far, the largest pharmaceutical manufacturers employed over six hundred, but less than seven hundred detail men. Today one of the manufacturers have has about 1,100 men in two pharmaceutical divisions. Further, this same company engages a large number of medical students to act as detail men for them during their summer vacations from medical school.

The training and maintenance of these detail men is expensive. Not only are salaries high today, but traveling is much more expensive, and most of these men must be supplied with automobiles.

Beyond this, the manufacturers are increasing the amount of advertising which they use to reach the doctors, and many of the pharmaceutical manufacturers are using consumer advertising to get their names before the public. Naturally, the great bulk of this consumer advertising merely advises the reader about the importance of visiting the doctor, but there have been some recent ones which attempted to impress upon the reader the importance of a particular prescription drug and even went so far as to advise the reader to ask the doctor why he did not use it in the reader's case. However, this latter type of approach has not been used very often, and it is doubtful that it will become very widespread under present circumstances.

Pharmaceutical manufacturers seem to lean much heavier upon direct mail advertising to the doctors than they do on periodical advertising. And this type of promotion has been stepped up to the extent that the average doctor is literally flooded with advertisements sent through the mails. Very little of this can possibly be read by the doctor, and, in fact, a very small percentage of it is of any real interest to him. Beyond this, the direct mail very often contains coupons or post cards to be returned if the doctor wants samples or if he wants some presents which the pharmaceutical house would like to give him. Recently a large pharmaceutical house, in advertising a product through the mail, offered to give each doctor who returned a card, a pocket thermometer with which he could take the temperature of his patients as a means of measuring the efficacy of the manufacturer's particular product mentioned in the advertisement. According to the manufacturer, the response to the offer was so heavy that the company decided to give one to every doctor in the country whether or not he had returned the card. The order for sufficient thermometers to fill this need was the largest one ever received by the instrument company that supplied them. This one piece of promotion must have cost the company in the neighborhood of $150,000.

The pace is swift in the selling end of the pharmaceutical business and the cost is high. However, an easing off does not appear to be in sight—in fact a faster pace would not be surprising at the present time.

And the pace is no less swift in the research end of the business. Research staffs and facilities are still being expanded by many companies. Furthermore, companies which have been successful in developing outstanding products useful in one branch of medicine are adding to their staffs scientists which can bring them at least abreast, and perhaps put them ahead of other companies who have developed successful products in still another branch of medicine. In some instances, manufacturers are juggling their scientists much as a manager of baseball team juggles his players. In other words, these manufacturers are trying to have their squads of scientists so constituted so that they are up to the minute on development of all types of products. Therefore, if it is antibiotics, steroid hormones, antihistaminics, vitamins, sedatives, or any ther type of products, the manufacturer will know all the answers. Then if one manufacturer comes through with a new product, these other manufacturers will immediately be able to move into position to challenge his position. This is the reason why a leading manufacturer recently engaged a steroid hormone scientist that had long been

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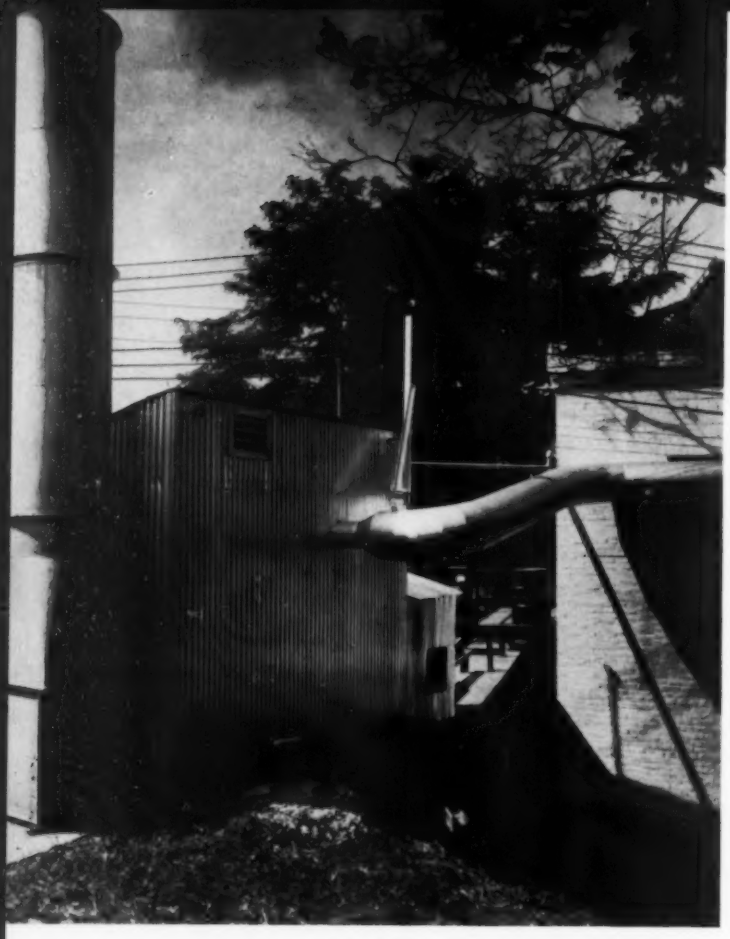

Incinerator building showing air tight exhaust duct running from isolation area to air heater inside this building. Note 16-foot high flue stack which also serves incinerator for solid waste.

Sterilizing Air By Direct Heating

by Berton M. Sharpe, SALES ENGINEER,
SURFACE COMBUSTION CORPORATION, TOLEDO, OHIO

The very tricky job of sterilizing germ-contaminated air exhausted from a pharmacology laboratory, before discharging it to outside atmosphere.

The current trend toward the segregation of infectious disease studies from other laboratory procedures poses a difficult problem of adequate and efficient disposal of the wastes from these areas. This is exceedingly critical in populated areas where it is necessary to destroy all residual germs and other harmful media in all waste materials that are deposited in the public disposal systems or vented into surrounding air. Solids and liquids are not too difficult to handle, but a practical reliable method for sterilizing the exhaust air from these rooms is a different matter.

This problem was recently encountered at Schenley Laboratories, Lawrenceburg, Indiana. After careful consideration, direct heating of the air to a sterilizing temperature was selected as the most ideal method, utilizing a gas burner arrangement of some type to heat the air to the required temperature. Setups consisting of separate components, burners, controls, etc., had been utilized in applications of this type with a certain degree of success. Nevertheless, these installations did

View of animal isolation room which is part of the sealed-off area.

not always achieve completely reliable automatic operation and uniform temperature control.

Direct Gas-Fired Air Heater Used

To carry out this job a Surface Combustion gas-fired air heater was purchased as a standard package unit with a rated input of 1,000,000 Btu per hour operating on natural gas. This type of heater is fired by means of an automatic proportioning low pressure burner firing into a refractory tunnel. The correct ratio of combustion air and fuel is continuously and automatically maintained throughout the entire operating range of this burner and is controlled by a single valve. Combustion air can be used at atmospheric pressure or at one pound pressure from a turbo compressor. Fuel gas is drawn directly from low or high pressure utility service lines.

Contaminated air, from the isolated laboratory rooms, is introduced to the heater at the end opposite the burner equipment. It travels through the space between the outer casing and the heater tube toward the burner. As the air contacts the burner combustion tunnel it reverses direction and enters the heating tube where it mixes directly with the rapidly moving hot products of combustion from the burner tunnel.

The heater discharges from the end opposite the burner and on a center line with the burner and heater body. The discharge temperature at this point is maintained at 650° F to insure complete destruction of all foreign bodies, germs, etc., in the air exhausted from the isolated rooms. This temperature allows an adequate margin of safety that can be readily achieved and automatically maintained with this type of air heater.

Automatic Controls and Safeguards

High-low automatic temperature control is achieved through a potentiometer type controller that records continuously on a 24-hour circular chart. The controlling element is a remote bulb with radiation shield that detects actual air temperature in the incinerator building stack at the discharge end of the air heater. This radiation shield insures that the true air temperatures only are accurately detected and recorded and thus the 650° F control temperature mintained.

Safeguard control equipment is provided to protect the unit against overheating and to prevent the release of contaminated air into the surrounding outside areas in case of interruptions of any kind.

To prevent overheating, a high limit control shuts down the gas burner if control temperature in duct is exceeded by 100° F or more.

In case of interruptions due to utility and other failures, an alarm signal sounds and gas supply is shut off. At the same time a damper is closed, upstream of the heater, and the contaminated room air is recirculated within the isolated area until air heater operation is resumed.

All Waste Sterilized

All waste matter from the pharmacology animal isolation and sterile rooms, including the exhausted air, must be sterilized before deposition in the public disposal facilities. In all of the cases (liquid, solid and air) this type of treatment is required by local ordinance for public health protection.

The isolated area, which is the source of contamination, is sealed off from the rest of the laboratory and office space. At Schenley Laboratories, this area consisted of three rooms—animal isolation room, sterile room and other work space—which is accessible through two double-door air locks.

The isolated-room air was initially conditioned in a packaged air conditioning unit located just outside the sealed animal isolation area. This 70° F conditioned air was introduced directly to the sealed rooms at three separate points. Spent air, highly contaminated with germs, etc., was exhausted at four points and vented to the gas-fired direct air heater for sterilization in a remotely located incinerator building. Air was exhausted at the rate of about 1200 cfm by a ½ h.p. blower fan located in the 18-inch diameter exhaust duct and housed in the same incinerator building. The isolated rooms were thus constantly under a slight negative pressure, so that any air leakage would be

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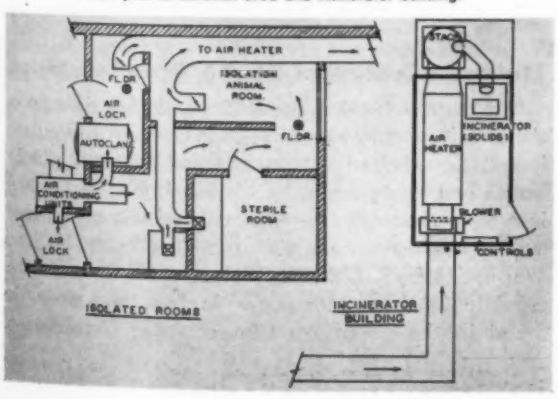
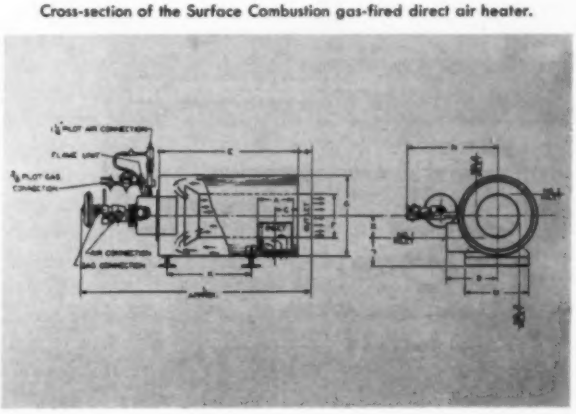
Floor plan of isolation area and incinerator building.

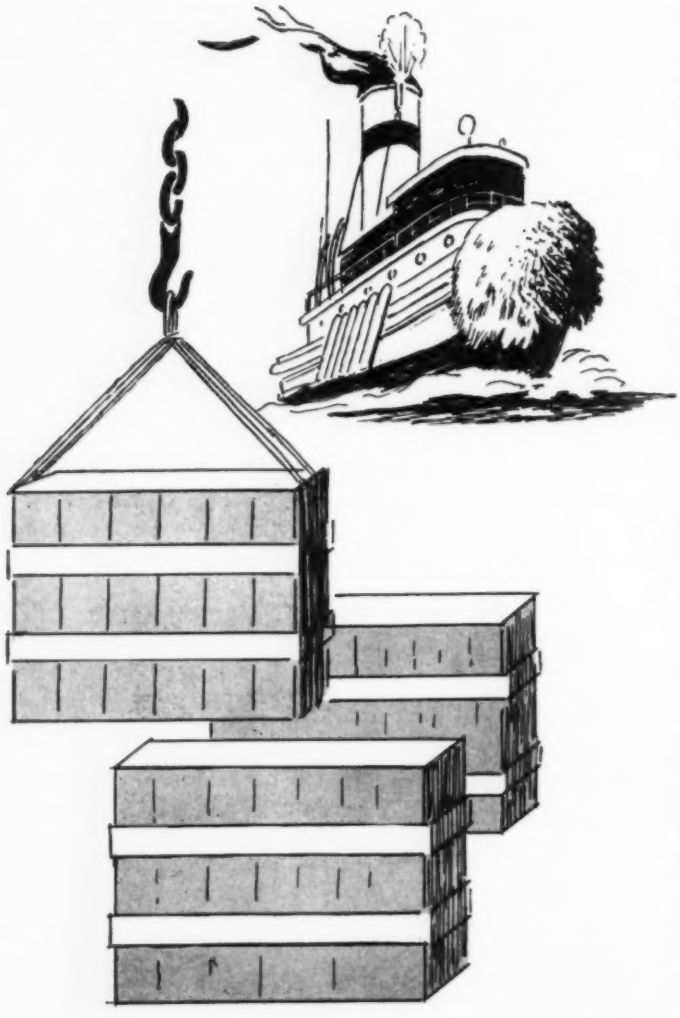


Cross-section of the Surface Combustion gas-fired direct air heater.



Export Law In Federal F.D.C. Act*

by David Rasch



In recent years, several bills have been introduced in Congress to amend Section 801(d) of the Federal Food, Drug & Cosmetic Act so as to extend the application of the misbranding and adulteration provisions of the Act to exports. In the last session of Congress, two such bills were introduced in the House of Representatives, one by Mr. Van Zandt and the other by Mr. Wolverton. Both bills were referred to the Committee on Interstate and Foreign commerce but were not acted upon. Since it is possible that a similar bill may be introduced in the present session, it is appropriate to consider some aspects of this proposed legislation.

At the outset, I would like to make clear that the company with which I am associated has an extensive foreign trade, but most of that foreign trade represents goods manufactured locally in various countries and only a minor percentage thereof represents finished, packaged goods manufactured in, and exported from the United States.

Section 801(d) of the Federal Food, Drug & Cosmetic Act provides that a food, drug, device or cosmetic intended for export shall not be deemed to be adulterated or misbranded under the Act if it (1) accords to the specifications of the foreign purchaser, (2) is not in conflict with the laws of the country to which it is intended for export, and (3) is labeled on the outside of the shipping package to show that it is intended for export.

Under the Van Zandt and Wolverton bills, exported foods, drugs, devices and cosmetics would be made subject to the adulteration and misbranding provisions of the Act unless such adulteration and misbranding exists "(A) by reason of the fact that such article is not labeled in the English language, if it is labeled in the language of the country to which such article is intended for export, or (B) by reason of compliance with a requirement established by or pursuant to the law of such country, or (C) by reason of noncompliance with a standard established or recognized by or under section 401, 501(b), 506, or 507, if a different but corresponding standard, with which such article complies, has been established or is recognized by or under the law of such country or is prescribed by a pharmacopoeia in general use in such country."

The Basic Concept of Food & Drug Legislation

The Federal Food, Drug & Cosmetic Act rests upon the constitutional power resident in Congress to regulate interstate commerce. To the end that the public health and safety might be advanced, it seeks to keep interstate channels free from deleterious, adulterated and misbranded articles of the specified types (U. S. v. Walsh, 331 U. S. 432, 434). Thus, while the power to regulate interstate commerce in food and drugs is found in the Commerce Clause of the Constitution

*Delivered before Section on Food, Drug and Cosmetic Law, New York State Bar Association.

(Article 1, Section 8, Clause 3), such regulation by Congress is in effect an exercise of the police power to protect the safety, health and welfare of the nation (Carolene Products Co. v. Evaporated Milk Ass'n, 93 F. 2d 202).

Territorial Application of Police Power

The power of sovereignty is the power of a state to govern men and things within the limits of its dominion (Nebbia v. New York, 291 U. S. 502, 524). Since the police power is an inherent attribute of sovereignty, it similarly extends to those matters which concern the regulation and control of the *internal* affairs of the state (16 C.J.S. page 542) and which are found to be injurious practices in its *internal* commercial and business affairs (Lincoln Federal Labor Union v. Northwestern Iron & Metal Co., 335 U. S. 525, 536). Any exercise of its police power by a state should therefore, by the very nature of the power, be based on the needs of the citizens of that state. Governments obviously function for the benefit of their own citizens and not for the benefit of foreigners residing in other countries. If the safety and health of a foreign people require protection, they have their own governments which are charged with the responsibility of affording them such protection. At the very outset, therefore, and before any consideration of specific observations respecting the Van Zandt and Wolverton bills, it seems difficult to justify these bills as a police regulation when the public health they seek to protect is not the health of the people of the United States but of foreign peoples over whom this government has no jurisdiction, and whose health is, as it should be, a matter of their own governments' concern.

The Proper Basis for the Exercise of Police Power

There has been a growing appreciation of the necessity of finding ground for a rational compromise between individual rights and public welfare (Home Building & Loan Ass'n v. Blaisdell, 290 U. S. 398, 442). Before there is any exercise of police power, consideration should be given as to whether there is a proper basis for such regulation in the particular case. First, there should exist a public necessity requiring its exercise (People's Petroleum Producers v. Sterling, 60 F. 2d 1041). "Legislatures may not, under the guise of the police power, impose restrictions that are unnecessary and unreasonable upon the use of private property or the pursuit of useful activities" (Seattle Trust Co. v. Roberge, 278 U. S. 116, 121). Second, the end should be appropriate and legitimate (Lochner v. New York, 198 U. S. 45, 57). Third, the statute should be designed and should "reasonably tend to correct some evils and promote some interest of the state." (Harlow v. Ryland, 78 F. Supp. 488, 493, affirmed 172 F. 2d 784; People v. Wood, 151 Misc. (N. Y.) 66). It should have some fair tendency to accomplish, or aid in the accomplishment of some purpose for which the legislature may use the police power (Welch v. Swasey, 214 U. S. 91, 105).

The Food & Drug Administration is very active in proceeding against druggists in this country for over-the-counter sales of prescription drugs. It is powerless, however, to proceed against druggists in foreign countries who violate Section 503(b) and sell prescription drugs over-the-counter. So far as its application to foreign druggists is concerned, Section 503(b) is unenforceable extraterritorially, and to compel American exporters to comply with the labeling requirements of the section thus serves no purpose.

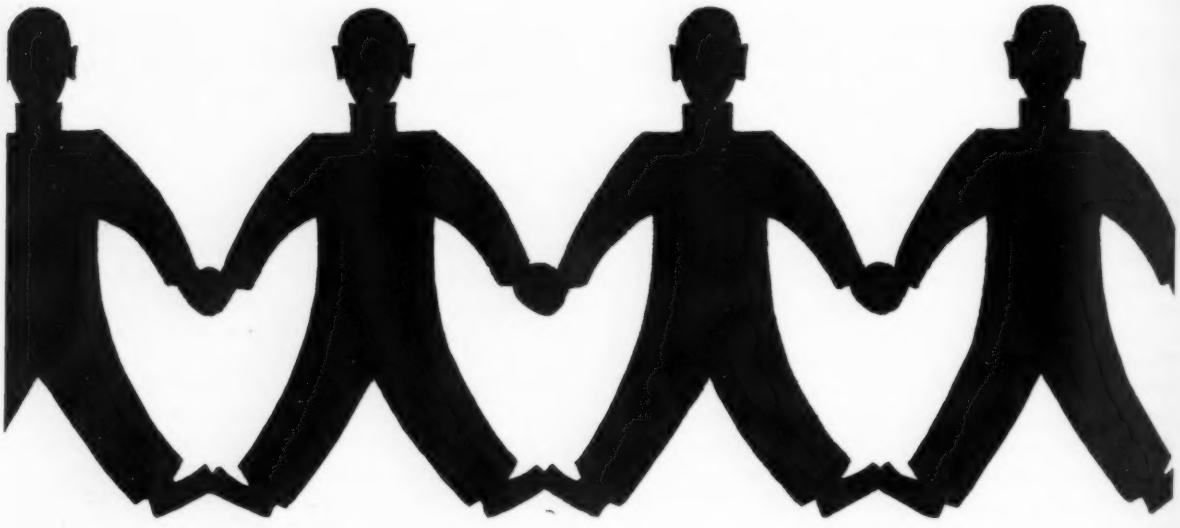
Similarly, the adequate directions and warning provisions, as well as all of the other requirements of the Act which are intended for the protection of the consumer are unenforceable with respect to exported drugs which are held for sale or are sold in a foreign country. In many countries, drug products are sold in general stores, and in single doses and broken packages rather than in the original package. The local vendor cannot be compelled to comply with the labeling provisions of our law in selling such single doses or broken packages. Nor can our drug law be enforced locally so as to prevent a local distributor from re-packaging or re-labeling American exports and causing them to be misbranded or even adulterated. Our laws cannot be made to follow the exported goods.

Conclusions

Unenforceable legislation is neither appropriate nor desirable, and serves no useful purpose. In the case of the proposed legislation, it could have far more harmful disadvantages than beneficial effects. It does not appear to be necessary for the protection of the health and welfare of foreign peoples who have their own applicable laws and regulations, and who, if they so desire, can obtain the benefits of the existing provisions of the Federal Food, Drug & Cosmetic Act by simply specifying that exported drugs purchased by them shall conform to said Act. It might stimulate resentment on the part of foreign governments on the ground that the extension of our drug controls to goods sold in their country is an unwarranted interference with their authority and jurisdiction. It cannot have substantial effect in promoting the health of foreign peoples since locally made drugs and drugs imported from other countries would not be subject to such controls. It would require American exporters to conform to requirements that are not recognized or followed in foreign countries and would place them at a competitive disadvantage in relation to locally made drugs and drugs imported from other countries. It would set up requirements for exported drugs which would be unenforceable in the countries where such drugs are held for sale or are sold. In short, it is not legislation which is appropriate to the accomplishment of a legitimate end.

(Continued on page 584)

Perfect reproduction of your art work on every tube, when you

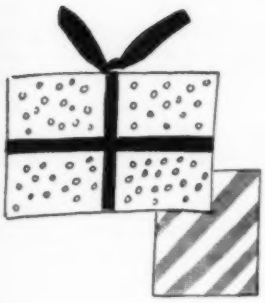


package your product in Sun Tubes!

Sun Tube
CORPORATION

SUN TUBE CORPORATION, HILLSIDE, NEW JERSEY, Waverly 3-0400

St. Louis 1, Missouri: Marvin Yates Co., Arcade Building
Cincinnati 8, Ohio: Ralph H. Asch, 3449 Custer Road
New Orleans 19, Louisiana: R. P. Anderson Co., 925 N. Solomon Pl.
Houston 19, Texas: R. P. Anderson Co., 5643 Overbrook Lane
Dallas 2, Texas: R. P. Anderson Co., 1122 Texas Bank Building
West Coast: Wm. J. Steepker, 301 E. Colorado, Arcadia, California
Canada: Sun Tube Corp., 145 Spruce Street, Ottawa, Ontario
Mexico: Tubos de Estano, S. A. de C. V., 174 Oriente No. 247, Colonia Moctezuma, Mexico, D. F.



Packaging and Selling

Expanding Fragrance

Ever since the depression days beginning in 1930, perfumers have been seeking, and have used, a wide variety of fragrance applications in an effort to broaden the market of fragrance users.

It was in 1930 when perfume sales, like most other products, took a severe slump. At this time, almost all of the fragrance business was done in the form of a concentrated essence, that is, the perfume, with a fairly substantial business in toilet water and a very limited business in cologne. At this time cologne was confined to the classical type then existing and was used in a continental fashion rather than as competition for a perfume essence or for the toilet water.

In 1930, the so-called floral cologne made its first appearance. This was simply a device to reduce the solution of the perfume essence and to make that fragrance available to the consumer at a price she could afford to pay and without destroying the glamour and the prestige of the perfume. This highly diluted perfume which came to be known as a floral cologne was a great boon to the industry and during the next several years more than tripled the dollar purchases of fragrance and increased the number of fragrance users from something less than five million women to over ten million women.

Since then, it has been interesting to watch the endeavor of the perfume industry to still further expand fragrance sales by devices which would bring fragrance within the purchasing power of the bulk of the population and would still retain for perfume its position of exclusiveness, fashion, prestige and glamour.

One of the most successful of these devices was the cologne stick which had a three year run and which appealed tremendously to the public as a gadget for applying fragrance. There is no question that the cologne stick induced over two million additional women to use fragrance and during a period of three years added a substantial number of dollars to the industry.

Following the cologne stick came the various assortments of sampler bottles in groups of one and two oz. colognes as initiated by Faberge and Ciro. These combination sets of small bottles had their day in the sun-

shine and contributed still further to an expansion of interest in fragrance by the American woman.

Ciro followed their original creation of the sampler set with a new conception that has been equally successful. This is "Esscent" which Ciro calls "the nearest thing to perfume." Esscent is somewhere in between the cologne and the perfume in the concentration of perfume oils. It is another device for avoiding the disastrous pitfall of discrediting perfume in the woman's eyes by putting too low a dollar value on the perfume and yet giving the woman a fragrance, which in effect can be used as a perfume, at a price which she can afford and which will tempt her.

Still another path explored by the fragrance industry was the cream or lotion sachet. Using the term sachet is of course the same kind of a misuse of a cosmetic term as the misuse of cologne 20 years ago, which completely distorted the meaning of cologne. The cream or lotion sachet is simply a cream or a lotion formulated on lines somewhat similar to a vanishing cream but containing a high percentage of essence. The value of this product lies in the fact that the white oil in the cream or the petrolatum will retain odor strength from two to 2½ times as long as an alcohol solution. This long-lastingness of odor is universally recognized as one of the top desired quality by the fragrance user.

In the cream lotion sachet Houbigant has made a conspicuous success with sales running, it is reported, in excess of two million dollars annually. Up to date all of the other people who have attempted to market a similar product have failed to match this performance or in fact to establish an important market position.

Nevertheless, it is agreed by many in the industry that the cream or lotion sachet, because of its one outstanding virtue in retaining the odor over a long period has a definite value for expanding the sales of fragrance products. The theory of the people who have not done so well with these products is that women have for generations been taught to think of fragrance in terms of a clear liquid with the high rate of evaporation given by alcohol. A cream or lotion connotes to them a hand or face cream heavily perfumed, not a fragrance product.

Now Rubinstein appears on the market with a new and interesting product which may help to solve this particular problem. Cologne foam, because of an aerosol application and because of its pink color does not carry the suggestion of a hand or face cream but does suggest a new and unique type of product which may be accepted by the public as a fragrance carrier as readily as was the cologne stick.

It is possible that the adaptation of a glass bottle for aerosol application may make a tremendous change in fragrance marketing and may expand fragrance sales substantially beyond the 20 million women now using fragrance. This is because the aerosol gives an ease of application far beyond the hand operated atomizer and in a way that could make cologne be used with much more ease and frequency. The first to appear on this market with the cologne in a glass bottle aerosol is Carven with ma griffe and other Carven odors. According to reports, the sales of this Carven package over the counter holds a promise for a greater expanding market in this direction.

Better Plastics

The plastics industry has just united to curb the misuse of plastics. Although this is primarily a measure for the protection of the public, the users of packaging material will welcome this action.

The four trade associations—the Manufacturing Chemists Association, Inc., the Society of the Plastics Industry, Inc., the Society of Plastic Engineers, Inc. and Plastics Coatings and Film Association—announced agreement on a four-point "Statement of Principles" which all companies in the plastics industry will be asked to sign.

THE "STATEMENT OF PRINCIPLES"

"Plastic materials challenge industry with new concepts of design, engineering, construction, processibility and usefulness.

"The properties of plastic materials, when correctly used, open up great new areas of service to industry and the public.

"Improper use can do irreparable damage to the plastic industry, to both manufacturers and processors of the materials.

PROPER USE SOUGHT

"Therefore, we as manufacturers and processors of plastic materials reaffirm our adherence to the principles upon which the healthy growth of a great industry depends and undertake to:

"1. Understand thoroughly the properties and limitations of all plastic materials handled by us.

"2. Apply the correct plastic materials to all industrial end uses, designing and engineering them for maximum value, performance and safety.

"Use great care to select the correct plastic materials for all consumer items, designing and engineering them for maximum value, satisfaction, safety and pleasure of all users.

"4. Sell plastic materials, and all industrial and consumer items made therefore, on the merits of the materials, application and design, and free of extravagant, insupportable claims.

Laboratory sealed...

with a Du Pont CEL-O-SEAL Band

REG. U.S. PAT. OFF.

"Building and maintaining consumer confidence in quality pharmaceuticals is a never-ending task. From raw materials to finished products, U. S. Vitamin Corporation strives ceaselessly to maintain its high standards of quality, purity, uniformity and stability. When a consumer buys and opens our Vi-Syneral Vitamin Drops, he is sure of protected quality—a tamperproof original package, *laboratory-sealed* with a Du Pont 'CEL-O-SEAL' band. Over 40,000,000 bottles of Vi-Syneral Vitamin Drops, which is the original (since 1943) 'oil-in-water' vitamin solution, have combined 'CEL-O-SEAL' product protection with neat package appearance."

says **Mr. H. B. Burns,**
President
U. S. Vitamin Corporation

Impression-making Du Pont "Cel-O-Seal" bands will work for your package, too! They hold closures tight, guard against tampering and spillage, inspire consumer confidence. And "Cel-O-Seal" bands are available in a wide range of colors, can be printed with an eye-catching sales message or slogan.

FREE PACKAGING SERVICE: See for yourself what Du Pont "Cel-O-Seal" can do for *your* package. Send us a labeled dummy bottle. Our packaging experts will band it, return it for your inspection. No obligation, of course. Write: E. I. du Pont de Nemours & Co. (Inc.), "Cel-O-Seal" Section, 9529-D Nemours Building, Wilmington 98, Delaware.

"Cel-O-Seal" cellulose bands are also sold by Armstrong Cork Co., Lancaster, Pa.; and on the West Coast by I. F. Schnier Co., San Francisco, Calif.

DU PONT
CEL-O-SEAL BANDS

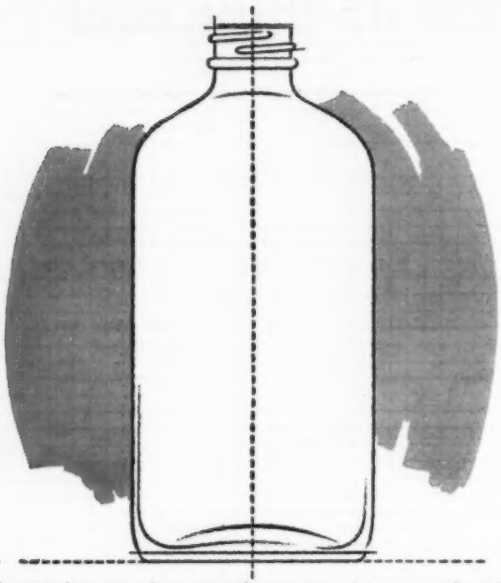
REG. U.S. PAT. OFF.

DU PONT

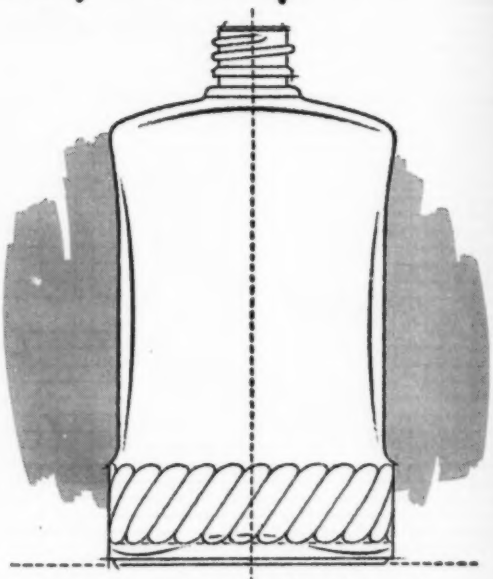
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

Which one is the SALESpackage?



Is it the package where product protection is the dominant consideration?



Or the package of high style and distinctiveness?

Or the package with advantages for the retailer, or in actual consumption?

The answer has to be: ALL of them

But few product problems fall into one exclusive category.

The Owens-Illinois method of systematic exposure of packaging problems to the engineer, the designer and the marketer yields an impressive consistency in producing top packaging values.

DURAGLAS CONTAINERS
AN (I) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO

Folding Carton Competition

The award winners of the 1954 Folding Carton Competition, sponsored by the Folding Paper Box Association of America, were recently announced. There were 12 winners in the drug and cosmetic fields.

In the "Superiority of Printing" classification for the best gravure and offset lithographic printing in one and two colors, Ace Carton Corp. won the First Award for Bauer & Black division of the Kendall Company with its Cotton Balls package.

The Award of Merit went to Robert Gair Co., Inc., for Lehn & Fink Products Corp. for "Midnight."

For the "Best Letterpress and Flexographic Printing" in one and two colors, Ace Carton Corp. won an award of merit on behalf of Allen B. Wrisley Co. for Sachet Paquet.

Wilkata Folding Box Co. received an award of merit for multi-color in the same classification on behalf of Ciba Pharmaceutical Products, Inc., for the Privine Nebulizer Display.

In the Superiority of Construction classification there were two winners, both Awards of Merit: the Richardson Taylor-Globe Corp. for Procter & Gamble (Drene Shampoo Display) and Robertson Paper Box Co., Inc., for Lever Brothers Co. (Lifebuoy Shaving Cream Display).

There were two Awards of Merit won in the Ingenuity of Construction classification: Container Corp. of America for Coty (Coty Cosmetics Family) and Trenton Folding Box Co., for Hazel Bishop, Inc. (Hazel Bishop Nail Polish Display).

In the End Use category, The Sparks Corp. won a First Award for Sharp & Dohme, Inc. in Medicinal Products (Sharp & Dohme Direct Mailers); Robertson Paper Box Co., Inc. received a First Award on behalf of Elizabeth Arden Sales Corp. for Cosmetics—Personal Accessories (Elizabeth Arden Blue Grass Flower Mist); one Award of Merit was won by Container Corp. of America for Coty (Coty Cosmetics Family) and also by Trenton Folding Box Co., for Hazel Bishop, Inc. (Hazel Bishop Nail Polish Display).

Advertising Limitations

This country is so completely advertising minded that there is a continual tendency for many businessmen, including some pretty big businessmen, to over-estimate the magic of advertising. There is still a widely prevailing illusion that if a company can only spend enough money on advertising then everything else will fall into place without too much effort and will give business leadership in a particular field. This illusion is nurtured by the fact that something like this does appear to happen quite frequently.

We have quoted in this department, on several occasions, opinions which blow up this smug attitude and which reflect a growing understanding that in any sustained, successful business advertising is only one part of marketing success and not necessarily the most important part.

Just recently, one of the leading public relations experts of the food industry had this to say "Regardless of how well the consumer may be indoctrinated, if the product is not readily available and well displayed at the point of sale, neither the final act of planned purchase or the emotional reaction of impulse buying happens."

Coming Faster

Vending machines took in one and one-half billion dollars last year, with a gain of some two hundred million dollars. These are the figures of the Eighth Annual Census made by the magazine VEND. Vending machines are now selling a wide variety of products from apples to razor blades, many convenience products, many liquids and a number of services such as clothes drying and shoe shining. A few products of this industry are dispensed, in this way such as hand lotions. The majority of machines are now in industrial locations. To a large extent, an industrial location provides economical rental space and, what is far more important, reaches the great bulk of men and women in the United States at points of high concentration. The location of a vending machine in a large industrial plant today provides a means of intercepting a customer purchase for very many stable products before the customer gets to the retail store. Some of these non-food staples that are doing so well in the grocery supermarket, without any personal selling, maybe will be doing even better before long in vending machines in industrial plants.

Aerosol Burn Treatment

The low-pressure aerosol in a glass bottle is moving over from cosmetics into drugs. Burn-Spray, announced by Spray-Pack Products, Cleveland, Ohio, is an emergency home treatment for burns. Burn-Spray is packed in amber colored glass bottles which reflect the actinic rays of sunlight, assuring stability of the material over a long period of time. The product is released in a heavy mist form by means of a special valve which requires no siphon tube.

all three with PLAXPAK® bottle

impulse appeal

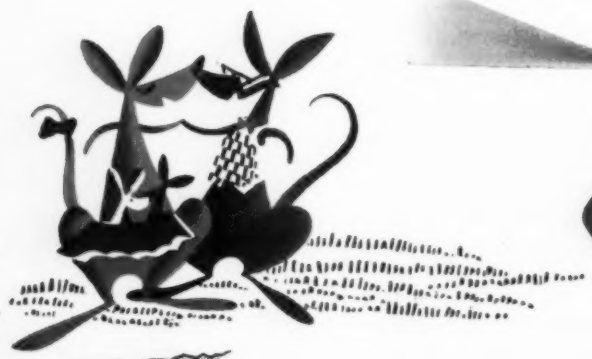
Spectrum-wide choice of colors to spur sales at point-of-sale.

use appeal

Ease of squeeze dispensing to increase consumption at point-of-use.

repeat appeal

Use convenience and shelf-impact combine to foster brand loyalty.



The Plaxpak bottle "fights" for your product at the point-of-sale, re-sells it at the point-of-use and so brings customers back for more. Plax has unequalled experience in plastic bottle packaging—let us help you produce another merchandising success.

PLAX

PLAX CORPORATION

WEST HARTFORD, CONNECTICUT

PLAX CANADA, Ltd., Montreal & Toronto

Not Much of a Revolution

Woolworth is now celebrating the 75th year of business of this typically American enterprise. In commemoration of the 75 years the company has just published a brochure giving the complete history and the story of this great retail institution.

Among the many interesting stories in the development of this business is a statement by Edwin Merton McBrier, a partner of F. W. Woolworth: "On entering a drygoods store where small wares and "Yankee notions" were sold, one found long stretches of bare counters with clerks standing at attention behind them. . . . The stock of drygoods was carried on shelves ranged along the walls. The small wares were kept on a wide lower shelf, or in boxes under the counters. The customers were expected to make their wants known. . . . There was no such thing as "counter display."

This is a retail practice that Woolworth shattered by establishing a single fixed price, open display of merchandise and cash sales.

At this time when we were supposed to be in a retail revolution, with the grocery super-market shattering all precedents and practices in retailing, it is interesting to note that it was Mr. Woolworth in 1879 who: (1) Instituted open display for impulse buying; (2) Provided what was in effect self-service in picking up and selecting merchandise; (3) One-stop shopping.

When we reflected on the methods of this early pioneer, it does not look as if we are in much of a retail revolution after all. Perhaps we are just catching up.

$1.02 Billion for Toilet Preparations in 1953

Retail sales of perfume, cosmetic and other toilet preparations, not including toilet soap, reached a total volume of $1,020,800,000 for the calendar year, 1953, according to an estimate by the Toilet Goods Association in collaboration with *Beauty Fashion* Magazine. This new record is an increase over the previous high set in 1952 by approximately 1.6 per cent.

Considering the principal groups of products, very few of them showed any substantial gain or loss in sales. Sales of fragrance products were substantially unchanged from the previous year, with perfume sales slightly below 1952 and cologne sales slightly above. Greater increases had been expected in this group but due to the failure of solid colognes to maintain their volume, substantially a break-even point was the best that could be attained. Creams and other treatment products also remained practically stationary as far as volume of sales was concerned. The make-up group showed a slight gain with face powder off slightly, but its loss was made up by increased sales of tinted make-up bases of various types.

The dentifrice market was again affected by the introduction of a new type of dentifrice—anti-enzyme—with the result that total sales increased nearly five per cent. This increase did not approach that brought about by the introduction of ammoniated dentifrices or chlorophyll dentifrices because one principal manufacturer shifted his entire production to anti-enzyme. Shaving creams showed a very substantial gain which can be attributed to the growth of sales of shaving creams of the aerosol type. The average cost per shave with this type is somewhat higher than that for regular lather or brushless creams, and this brought about a substantial increase in retail sales volume.

The pattern of distribution continued to change although the change seemed to be at a less rapid rate. Percentage-wise sales through drug stores declined from about 34.5 per cent in 1952 to about 32 per cent in 1953. Department stores accounted for a little more than 22 per cent of the market, up very slightly from the preceding year. Sales through house-to-house canvassers continued to gain but at a somewhat reduced rate. This type of distribution accounted for about 18.3 per cent of the market in 1953 as against 17.5 per cent in 1952. Utility items such as dentifrices, shaving creams and shampoos continued to show spectacular gains in the grocery stores and super-markets; in fact in the dentifrice field, food stores accounted for the entire increase of nearly five per cent with drug stores and variety stores showing a lower volume of business. This group of outlets accounted for roughly 15.5 per cent of the market, as against 14 per cent in 1952. Sales through limited price variety stores declined very slightly from the 8.5 per cent level attained in 1952. The remaining volume is spread over various other types of outlets of lesser importance.

Sales Leverage

According to reports, Lever Brothers will soon break with a mailing to thirty million families. This gives some kind of a picture of the leverage that big business can exert in marketing.

Place for Lost Leaders

Department store executives were recently advised by E. B. Weiss, Director of Merchandising for the Gray Advertising Agency to leave the lost leaders to the supermarket and to concentrate on the profit as well as the volume purchases. We don't quite understand just how Mr. Weiss is going to separate the sheep from the goats in his classification of a volume producer and a lost leader. The volume producer of today is very apt to turn up as a lost leader of tomorrow. We think more specific advice would be to leave to the grocery market and the mass drugstore the type of toiletry which belongs in self-service selling and to concentrate on products where there are some limits set in distribution, where there is a chance to build up some sort of a clientele and where personal selling has an opportunity to earn its way.

Not a Trend

There is said to be an increasing trend for the giant sized package in toilet goods. One speaker at a recent meeting of department store executives claimed that this trend is being caused by a trend towards larger families.

So far as our observation goes, there has always been a tug of war between a trend to a large size and a trend toward smaller sized units. Each have their advantages at particular times. We do not think there is anything new in consumer buying habits toward either the big or the small size.

NEW PERFECTION
DROPPING PARTS
meet EVERY
"Satisfaction Test"

QUALITY	A-1
UNIFORMITY	A-1
PERFORMANCE	A-1
CLEANLINESS	A-1
SERVICE	A-1

#1

Non-rolling, extra-depth, Bakelite cap; thick-flange rubber bulb; Saftee-ball glass.

#3

Regular plastic cap; thin flange rubber bulb; semi-blunt glass.

#4

Metal cap: AMEKINE oil-resisting synthetic rubber bulb; blunt glass.

They're A-1 with your customers, too . . . assuring you repeat sales!

When you sell a product that pleases and satisfies your customers, you're assuring yourself of their goodwill and continued patronage. New Perfection Dropping Parts help to give you that kind of a product. They are convenient, attractive, dependable—manufactured and assembled under careful and constant inspection to assure the highest possible quality.

RUBBER BULBS are supplied in many styles and colors. Oil-resisting AMEKINE synthetic rubber is used for oil preparations; natural rubber is supplied for other products.

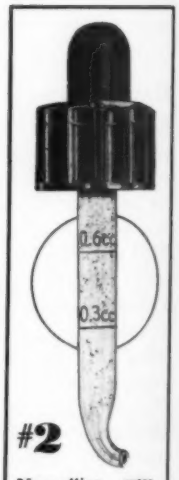
CAPS of plastic or metal can be furnished in a complete range of sizes and colors.

DROPPER GLASSES are available in a wide variety of styles and sizes; plain or CALIBRATED in any color to mark specific dosages.

• • • • •

We can make up dropping parts to fit your own bottles or we can supply bottles in an attractive modernistic style in Amber, Blue, Green, or Clear glass, complete with dropping parts, in the following sizes: 2 cc, ⅛, ¼, ½, 1 and 2 oz.

• • • • •



#2

Non-rolling extra-depth Bakelite cap; thick flange rubber bulb; special bent glass. (Calibrated in color).

WRITE FOR SAMPLES AND QUOTATIONS

PENNSYLVANIA
GLASS PRODUCTS CO. INC.

"Glass Goods of the Better Kind"

430 N. CRAIG ST. • PITTSBURGH (13), PA., U.S.A.

Merchandising Magic....

...the revolutionary

glass aerosol

Application of the low pressure aerosol principle to glass containers opens an untapped field in modern packaging. Personal products, especially, gain sales appeal and value when offered in spray dispensers. Suntan oil, body deodorants, hair dressings, perfumes, colognes, and many other drug, cosmetic, and chemical items lend themselves to the convenience, cleanliness, economy, and protection push-button containers offer. And now, in glass, aerosol-dispensed products enjoy the added advantages of content visibility plus unlimited range of bottle sizes and shapes... permitting flexible pricing and distinctive packaging in highly competitive trades.
Be sure to investigate this new trend. Have your product evaluated for aerosol dispensing possibilities. Contact Continental today.

get the *Extra* advantages of CONTINENTAL SERVICE

✱ **Complete Filling Service.** *We do not merchandise any products of our own. Our sole operation is contract and custom filling of containers with your products... liquid, pressurized or aerosol... in glass or cans.*

✱ **Extensive Laboratory and Production Facilities.** *Continental conducts chemical analysis and continuing research on dispensing methods and containers. Filling equipment is the finest in the industry, geared to handle orders of any size. Quality control and inspection safeguard your shipments.*

✱ **Warehousing and Drop Shipping in Bulk Lots.** *Extensive storage space permits you to use our two centrally-located plants as national distribution points, with consequent large savings on freight costs. We handle shipping and paper work. Your orders are ready when you want them.*

MAIN OFFICE • 123 NORTH HAZEL STREET, DANVILLE, ILLINOIS

CONTINENTAL FILLING CORPORATION

PLANTS • DANVILLE, ILLINOIS — HOBART, INDIANA

CONTRACT AND CUSTOM FILLING

LIQUID SPRAY FOAM

KING SIZE
1 ounce capacity
PURSE SIZE
½ ounce capacity
Your Stick Deodorants...
Facial and Hand Creams...
Solid Cologne... Stick Perfumes...
After Shave Lotions...
CALUMET
Swivelpak®
NO MOULDING REQUIRED . . . PRODUCT CAN BE POURED DIRECTLY INTO CONTAINER
. . . ELIMINATES NECESSITY FOR COSTLY FOIL WRAPPING AND MESSY HANDLING.

CALUMET *Manufacturing Co., Inc.*

565 FIFTH AVENUE, NEW YORK 17, NEW YORK, MURRAY HILL 8-4270

PLANTS: NEW YORK CITY, BLOOMFIELD, N. J

IN CANADA: CALUMET DIVISION OF ERIC H. HARDMAN, LTD. 137 WELLINGTON ST., WEST, TORONTO, CANADA *PAT. PEND.

Doings

Yardley has launched a major spring promotion of Bond Street fragrance with two new packages, based on the theme, "A Bouquet from Bond Street." One Bouquet features a 1¾-ounce bottle of toilet water and a generous sample size bottle of perfume for the price of the toilet water alone, $1.25. A 3-ounce bottle of Bond Street toilet water selling for $1.75, bears a nosegay and gift card.

John N. Breck, Inc. is offering a special during April which features a four-ounce bottle of Breck shampoo and a 1½-ounce tube of Breck Treatment for 98 cents. The regular price of the combination would be $1.35.

Jean Patou is this month introducing Joy Poudre de Toilette, a luxurious bath powder richly scented with Joy perfume. Imported from France, the powder is finely textured, deeply perfumed and has a delicate flesh tint that blends smoothly and perfectly into the skin.

J. B. Roerig & Co. is marketing a chocolate-flavored oral suspension of Tetracyn, the newest broad-spectrum antibiotic. The new dosage form of tetracycline has been formulated to appeal to children and give a high-potency dose of Tetracyn in a single spoonful.

Tussy Cosmetiques will introduce its new Bright Secret series next month. It is a glamorous expression of beauty in fragrance, consisting of perfume, powder.

Odara Products Co., 6322 Clayton Road, St. Louis, has introduced Karidium tablets, designed to provide maximum caries protection for children. The tablets are packaged in bottles of 180 and 1,000, respectively.

Zotox Pharmacal Co. is introducing Zotox, its new antidote for poison ivy, oak or sumac. It is a white cream containing zirconium and gives instant, soothing relief. The product is packaged in matching display cartons designed and made by Robert Gair Co.

Helen Neushaefer's Color-Teller Tip Lipsticks are now being displayed on an attractive four-color easeled display card, newly designed for drug store use. Above the lipsticks, individual shade names are mentioned on the card.

Shulton's new Escapade Perfume will have its debut on May 1, when it will be introduced in leading stores from coast to coast. The new perfume, the first in 11 years by the firm, will be launched with one of the most extensive advertising campaigns ever expended on a new perfume.

Organon has released Trevidal, a balanced antacid tablet which relieves gastric hyperacidity without causing constipation or diarrhea and without alkalinosis. The tablets contain a vegetable mucin which puts a protective coating on the wall of the stomach and duodenum, and also coats the ulcer itself to allow for more rapid healing.

Harriet Hubbard Ayer is offering its annual half-price sale on its "Dry" deodorant cream, for the months of April and May.

Breon has introduced Benzolin, a local anesthetic for topical use. It is a greaseless, non-staining cream which gives prompt and prolonged relief from the pain of first degree burns, abrasions, anal fissures and hemorrhoids.

The Gaby Company, Philadelphia, has added a new item to its regular line of suntan lotions, a six-ounce bottle of Gaby in a special non-breakable plastic container.

Dermetics' newest dual-purposed eye make-up gadget is a beautiful little golden pencil which serves to add soft, alluring color to lids and doubles as an eyebrow pencil. It comes in four shades, blue, black, brown and green.

Nepera Chemical Co. is distributing Biomydrin Otic, for treatment of otitis media and otitis externa, and Biomydrin Nasal Drops, a new companion product to the widely used Biomydrin Nasal Spray. The Drops are indicated for treatment of a broad range of common upper respiratory disorders and nasal allergies.

Parke, Davis & Co. has released Penasoid Suspension, a stable suspension of potassium penicillin in coconut oil for oral use. It does not require refrigeration.

Bristol Myers' new spray deodorant, Mum Mist first went on sale last month in Atlanta, Birmingham, Memphis, Miami and Charlotte, and by the end of the month in other key Southern and Southeastern cities. It will be sold in stores all over the country by July 1.

Helena Rubinstein is distributing "Tan-In-A-Minute," a clear, dark liquid, which spreads evenly and easily to give a golden brown tone so right for light or town-dark cottons. It lasts beautifully, won't rub off on clothes. In fact, it takes cream or soap and water to remove the water-repellent liquid tan.

Tablet coating

BY RONALD CLARKSON—TABLET CONSULTANT

At Last—A practical, authoritative textbook on Tablet Coating!

This is the answer to a world-wide request for a down-to-earth book on this highly specialized technique.

The author, Ronald Clarkson, an outstanding tablet consultant, is well known in this country and abroad for his contribution to technical literature on Tablet Manufacturing. Co-author of the text book *Manufacture of Compressed Tablets,* he has also presented papers on various phases of tablet manufacturing before the APMA production meetings.

Since entering the consulting field he has been a contributor to *Drug and Cosmetic Industry*.

In his capacity as a consultant the author has been supplying coating instructions to his clients in various parts of the world at a substantial fee. This confidential copyrighted treatise was entitled *The Fundamental Procedure for Coating Tablets* and forms the basis for this text.

The original treatise has been greatly expanded and here it is at a fraction of the original price!

A Valuable Aid to Everyone interested in coating tablets

- Production Managers
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A Technical Book filled with Formulas for

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- Dusting Powders
- Colored Syrups
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- Enteric Coatings

In addition to the valuable formulas, complete directions for their preparation are given—even to such minute details as the temperatures at which they should be used.

Detailed instructions on how to reclaim spoiled tablets are outlined.

An entire chapter is devoted to installing a coating department—recommendations being given regarding the proper size and type of equipment, operating capacities, dust control and hot air systems—also how to lay out a complete coating department, including blueprint floor plan.

All extraneous matter has been omitted. This book deals 100% with the details of actual coating—how to do it and produce satisfactory results.

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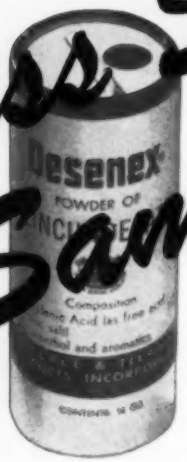
Cross Swing Sifter Sampler



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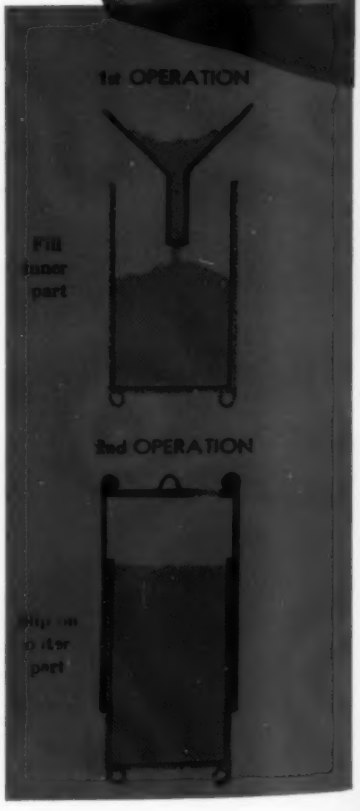

Ask for a representative to show you samples and discuss your problems.

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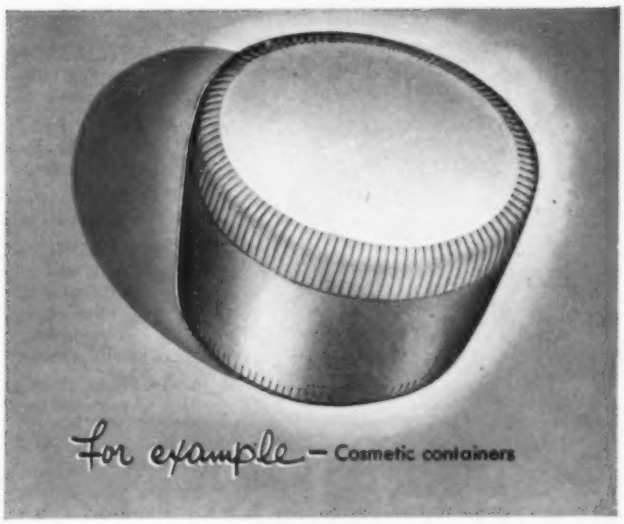
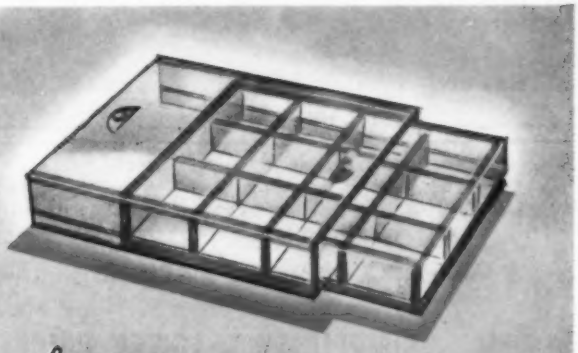


for example— Cosmetic containers

for example—

Fitments for metal containers



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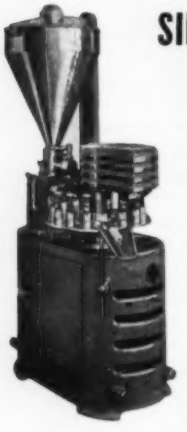

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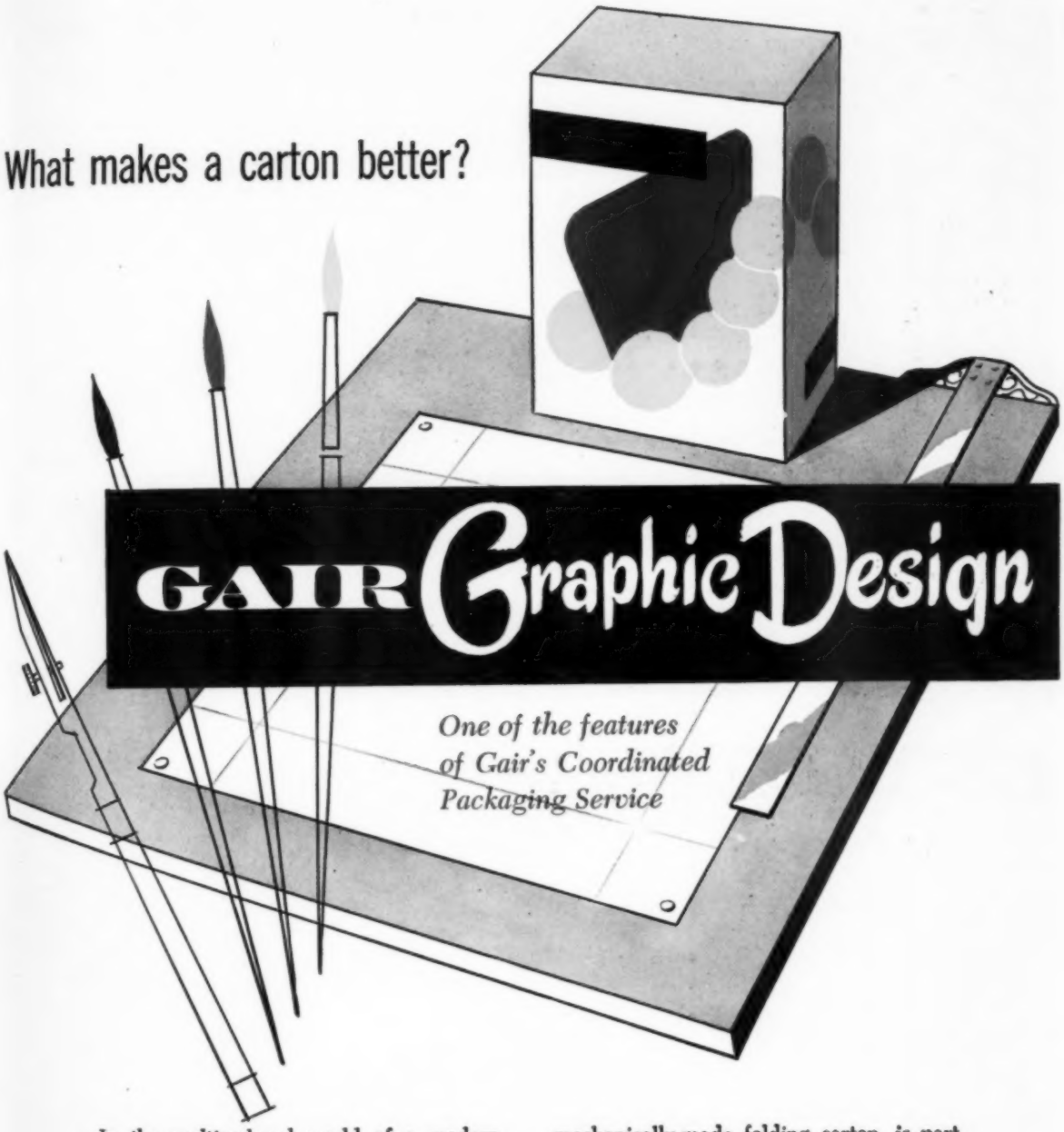

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In the multi-colored world of a modern store, where your product has to fight for attention, Gair-designed cartons spark the shopper's urge to look, to buy.

Here's why: More than good art goes into a Gair design . . . more than a keen sense of merchandising. Even the details of carton construction, the requirements of printing on paperboard and the effects of certain inks are considered by the Gair art staff. This talent, developed and passed on over the years since Gair produced the first mechanically-made folding carton, is part of the service Gair offers you.

Add *graphic design* to the other features —faithful reproduction of the artwork, structural design, carton production from a variety of materials, expert help on mechanical packaging—and you have the story on Gair's Coordinated Packaging Service.

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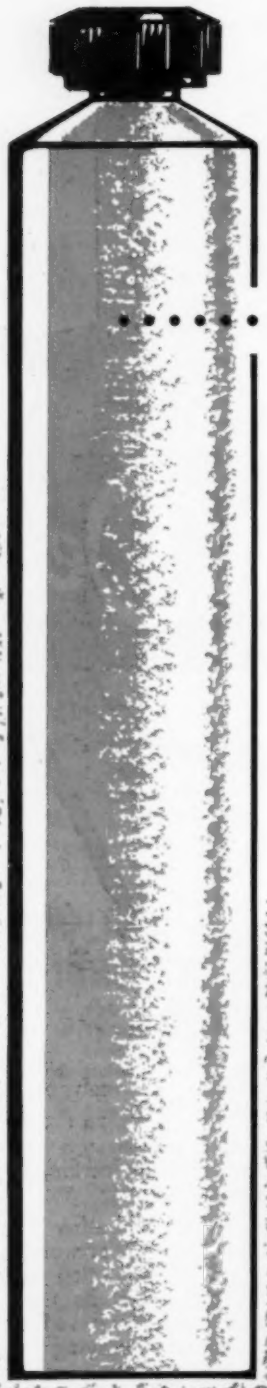

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News . . .

Changes in Bristol Labs.

H. Harrison Greer has been promoted to manager of the special products division of Bristol Laboratories, according to Richard A. Anderson, vice-president and director of marketing.

Edwin Markgraf has been appointed a member of the special products division sales staff. He had formerly been with Abbott Laboratories.

H. HARRISON GREER

Baker Retires—Sunkist

T. Fred Baker has retired as eastern division manager of the Products Department of Sunkist Growers, according to D. R. Thompson, general manager. He has been succeeded by Peter T. Wood, formerly product manager of the Walter Baker division of General Foods Corp., Dorchester, Mass.

A recognition dinner for Mr. Baker was given by Sunkist Growers at the Commodore Hotel, New York, on January 30. He and Mrs. Baker were presented with a set of matching luggage and Mr. Baker was given a Certificate of Appreciation for his years of service to the company. Mr. Baker's associates presented him with a diamond ring.

PETER T. WOOD

Chen Receives Sturmer Award

Dr. K. K. Chen, director of pharmacologic research at Eli Lilly & Co. received the Julius W. Sturmer Award from the Philadelphia College of Pharmacy and Science on March 10. He also delivered the second annual Sturmer memorial lecture, the topic being, "From Digitalis to Corchoroside."

The first Award was given last year to Dr. Benjamin M. Duggar, the discoverer of aureomycin.

Dr. Chen was honored for his achievements in pharmacology over the last 30 years, among his notable accomplishments being the introduction of ephedrine and the development of an effective antidote for cyanide poisoning.

DR. K. K. CHEN

SKF Employee Awards

Smith, Kline & French Laboratories honored 47 employees at its second annual service award dinner on March 19. The dinner was highlighted with an extemporaneous address by C. Mahlon Kline, chairman of the board.

Thirteen of this year's award recipients were honored for 20 or more years of service, while the majority of the guests were awarded 10-year pins.

Among those being honored for 30 years of service were Mattison N. Cresse, Mary E. Dickes, William J. Heringslake, and William F. Kaiser. Dr. George H. Connitt and Walter A. Munns received 25-year awards. Recipients of 20-year awards included Alfred H. Burr, Carmela M. Correale, Anna M. Hatley, Anna Hughes, Paul J. Kaiser, Agnes E. Kee and Theodore B. Wallace.

Behrens Retires from Pitman

William B. Behrens has retired from Pitman-Moore Co. after 46 years' service as sales representative. He spent most of his first few years in Central and Southern Illinois, but most of his career was devoted to the Chicago territory.

Breck Renovation Program

John H. Breck, Inc. held an informal party February 26 to celebrate the completion of the firm's renovation program at its main office building at 115 Dwight St., Springfield, Mass. Included in the extensive building improvement program is a new research and development laboratory and new and larger statistical and advertising department quarters.

The new research and development laboratory, occupying space formerly used for manufacturing operations which were transferred some time ago to the Company's West Springfield plant, is considered to be among the most modern and well equipped in the entire cosmetic industry.

Gladstone Talks at CIBS

Henry Gladstone, WOR newscaster, addressed the April 8 luncheon of the Cosmetic Industry Buyers & Suppliers Association at Toots Shor's Restaurant.

The organization announced the following golf dates for 1954: June 15, Montclair Country Club, Montclair, N. J., and September 16, Brookville Country Club, Glen Cove, Long Island.

Medal for Volwiler

Ernest H. Volwiler, president of Abbott Laboratories, and chairman of the board of directors of the American Chemical Society, has been chosen to receive the Chemical Industry Medal for 1954, "for conspicuous services to applied chemistry," according to the American section of the Society of Chemical Industry, donor of the medal. Formal presentation will take place at a meeting of the American Section following a dinner in Dr. Volwiler's honor at the Conrad Hilton Hotel, Chicago, on October 12, 1954. The meeting will be held in connection with the National Chemical Exposition.

Huisking Moves to N. Y.

Chas. L. Huisking & Co. has moved its executive and sales offices from 45 Clinton Ave., Brooklyn, to 215 Fourth Ave., New York 3. Demands for additional space to facilitate increasing manufacturing operations in the Brooklyn plant, according to William W. Huisking, vice-president, are responsible for the move. For the time being, billing and bookkeeping activities will be continued in the Brooklyn plant.

McKeen Honored by Cuba

John E. McKeen, president of Chas. Pfizer & Co., last month became the fourth American to receive the highest decoration of the Cuban Red Cross, the Grand Cross and Ribbon of the Order of Honor and Merit. Cited for leadership in the development of antibiotics, he was presented with the award at a ceremony in Havana by Brig. Gen. Evelio Figarola, chief of the Cuban Red Cross.

The medal had previously been given only to Mrs. Dwight D. Eisenhower, the late President Franklin D. Roosevelt and Mrs. Eleanor Roosevelt.

Mr. McKeen was honored "in recognition of his personal merits, and his colleagues' achievements in the field of antibiotic research and production, and their contribution to man's fight against disease."

John E. McKeen, president of Chas. Pfizer & Co., receives Grand Cross and Ribbon of Order of Honor and Merit, highest decoration of Cuban Red Cross, from Brig. Gen. Evelio Figarola. Mr. McKeen was cited for achievement in field of antibiotic research and production.

Fourmans Return from Trip

Dr. and Mrs. Victor G. Fourman, Syntomatic Corp., recently returned from an extended trip through Haiti, Columbia (South America), Panama and Jamaica. While in Haiti they were privileged to attend the 150th anniversary of the independence of Haiti. After the Carnival they met Eugene Paul MacGloire, president of Haiti, at a reception in his residence.

Gonlag with Pitman-Moore

Harry Gonlag has been appointed to the product development department of Pitman-Moore Company's biological laboratories, according to Dr. S. R. Bozeman, director.

Lilly Promotes Fernandes

Wilbur E. Fernandes, who has been associated with Eli Lilly & Co. since 1945, was recently named to the new post of manager of industrial sales. For the last two years he has served as a product addition studies associate.

WILBUR E. FERNANDES

Plax Distributors

Plax Corp. has appointed a new bottle distributor and announces that an older distributor has opened two new offices.

Peter & Co., 3208 Preston Highway, Louisville, has joined the Plax distributor organization and will have the territory of Western Kentucky and Southern Indiana.

S. Rieckes & Sons has opened two new Plaxpak bottle offices, one at 1831 Egbert Ave., San Francisco, and the other, at 4071 North Lawn Drive, Dallas.

Klingaman Heads Purchasing

Ivan J. Klingaman has been appointed director of the purchasing division of Eli Lilly & Co., replacing Austin H. Brown who will continue in the division in an advisory capacity as purchasing consultant. Mr. Klingaman had formerly been with the Cudahy Packing Co. as manager of the pharmaceutical department.

IVAN J. KLINGAMAN

Guenther Returns from Trip

Dr. Ernest Guenther, vice-president and technical director of Fritzsche Brothers, recently returned from a two-month visit to Europe. He traveled through Germany, France and Italy, making a side trip to Sicily for the purpose of studying the latest developments in the production of citrus oils.

The highlight of Dr. Guenther's trip took place on February 12 when he was the honored guest and principal speaker at a meeting of the Societe de Chimie Industrielle which was held in the Maison de la Chimie in Paris. Robert Bienaime, President d'Honneur du Syndicat National de la Parfumerie Francaise, introduced Dr. Guenther, whose lecture was on, "The Production of Essential Oils," with particular reference to developments in the Western Hemisphere. He discussed the difficulties connected with the establishment of a new essential oil industry in the various Latin American countries.

Jay Elected President

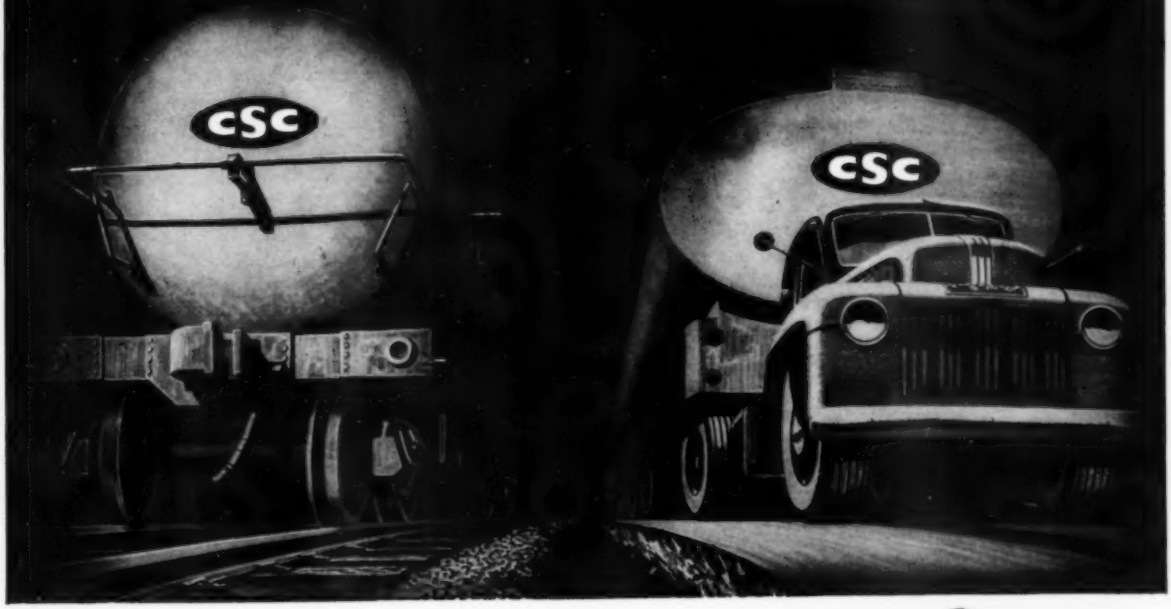
Norman Jay has been elected president, and Donald Burr, vice-president, of Hazel Bishop Inc., according to Raymond Spector, chairman of the board.

Adams Promoted by P-D

Earl J. Adams has been promoted to field manager of the Cincinnati branch of Parke, Davis & Co., according to A. E. Carter, branch manager. He is in charge of a territory composed of Kentucky and part of Cincinnati.

CSC ETHYL ALCOHOLS ... DERIVATIVES

...Ready to Roll from Coast to Coast



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CSC ethyl alcohols are available in all formulas and grades to meet the most exacting requirements of the pharmaceutical and industrial trades.

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Tributyl Phosphate	Pentaerythritol
Methanol	Acetone
Ammonia	Methylamines

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ALDEHYDES • ALCOHOLS • ESTERS • AMINES • AMINOALCOHOLS
AMMONIA • NITROPARAFFINS • SOLVENTS • PLASTICIZERS • INTERMEDIATES

Disperse your problems with these

Emulsifiers

TEGACID* . . .

A unique stabilizer of acids and acid-reacting substances in deodorant creams and lotions, hair preparations, medicinal creams and jellies.

* ACID-STABILIZED GLYCERYL MONOSTEARATE

TEGIN* . . .

The simplest and most versatile base for creating soft, neutral, greaseless products such as hand, foot and foundation creams. It has no equal for imparting a high degree of emolliency for skin compatibility.

* SELF-EMULSIFYING GLYCERYL MONOSTEARATE

TEGIN P* . . .

A preferred self-emulsifier for creating less viscous, extra soft textures in hand and suntan lotions, shaving, cleansing and cold creams. As little as ½ of 1% added to almost any cream will improve its texture and stability.

* SELF-EMULSIFYING PROPYLENE GLYCOL MONOSTEARATE

TEGIN 515* . . .

A non self-emulsifier for those who prefer to add their own auxiliary emulsifiers. Used as a replacement for stearic acid in lipsticks and makes a fine solvent for bromo acid.

* NON SELF-EMULSIFYING GLYCERYL MONOSTEARATE

Write for complete technical data,

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GOLDSCHMIDT

CHEMICAL CORPORATION

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SERVING INDUSTRY FOR A QUARTER CENTURY

SALES REPRESENTATIVES

BOSTON • CHICAGO • LOS ANGELES • ST. LOUIS • MONTREAL • TORONTO

Flavoring Convention in May

The Flavoring Extract Manufacturers' Association of the United States will hold its 45th Annual Convention from May 16 through the 19th at the Hotel Biltmore, New York. The following speakers will take part in the program which will include such subjects as chemicals in food, vanilla beans, business trends, and essential oils: Bernice Connor, director of editorial liaison, Ladies' Home Journal; Fred Bell, executive vice-president, National Automobile Dealers' Association; Robert C. Hibben, executive secretary, International Association of Ice Cream Manufacturers; Dr. John L. Barnhart, technical director, Dairy Industries Supply Association; Dr. G. G. King, scientific director, Nutrition Foundation; Dr. S. Sherwood, Sterwin Chemical Co.; G. J. Williams, the Dow Chemical Co.; and Dr. Bernard L. Oser, Food Research Laboratories.

There will also be addresses by members of the Vanilla Bean Association, the Essential Oil Association, and a report by Harold Janovsky, chairman of the Association's Scientific Committee.

Members of the convention committee are Robert Krone, Fritzsche Brothers, as chairman; Chris Christensen, Chas. Pfizer & Co., entertainment; F. J. Lueders, George Lueders & Co., golf; Charles P. McCormick Mccormick & Co., program; and R. W. Symmes, Baker Extract Co., registration.

Oxford Paper Display

Oxford Paper Co. had a unique display at the Paper Trade Association Convention from March 28 to 31 at the Waldorf-Astoria Hotel, New York. Called, "Oxford Papers in Action," the display represented a selection of the most interesting and effective printed products furnished by Oxford Merchants and users from all over the Country. The display included packaged products, books and magazines, business forms, advertising pieces, brochures, catalogues and a variety of other printed and converted products.

Harrell, Ass't Sales Mgr.

Charles T. Harrell has been promoted to assistant sales manager of the domestic sales division, Bristol Laboratories, according to R. A. Anderson, vice-president and director of marketing. He will assist Paul T. Rees, sales manager. He had formerly been southeastern division manager.

Bledsoe Wins Trophy

Fred Bledsoe, manager of Pitman-Moore Company's eastern region, recently received the annual trophy for outstanding sales performance during 1953.

Fred Bledsoe, right, manager of Pitman-Moore Co.'s eastern region, receiving annual trophy for outstanding sales performance during 1953 from L. W. Welch, salesmanager.

Tylee Heads Jacques Wolf

Schuyler E. Tylee has been elected president of Jacques Wolf & Co.; Gerald J. Demond has become vice-president, treasurer and general manager; and Arnold Pfister, secretary and plant manager. These officers were elected recently, following the death of Jacques Wolf, founder of the company.

Ellis with Charabot

Edgar R. Ellis, identified with the perfumery raw material business for many years, has joined Charabot & Co. Inc., as sales representative.

Magnus 14th Annual Dinner

Magnus, Mabee & Reynard, Inc. held its 14th annual dinner at the Waldorf-Astoria, New York, on Saturday evening, March 6. Percy C. Magnus, president, stated that the dinner this year was of exceptional interest because it saw the company at the beginning of its 60th year of business with world-wide activities, made possible in part by the confidence and friendship of the Wholesale Druggists of America.

Industrial, business and professional leaders on the dais included E. E. Leuallen, Dean of the College of Pharmacy, Columbia University; J. Wayne Luther, president, Druggists' Supply Corp.; Dr. John O'Neill Closs, executive vice-president, American Pharmaceutical Manufacturers' Association; E. Allen Newcomb, Executive secretary, National Wholesale Druggists' Association; Ray Schlotterer, executive secretary, Essential Oil Association of America; and company vice-presidents J. B. Magnus, R. B. Magnus and G. H. McGlynn.

Thomas Re-Elected Pres.

H. Gregory Thomas, Chanel, Inc., was re-elected president of the Fragrance Foundation last month at its fifth annual convention in New York. All other officers were also re-elected to one-year terms and include: Jean Despres, Coty, vice-president; Pierre Harang, Houbigant Sales Corp., vice-president; A. L. van Ameringen, van Ameringen - Haebler, Inc., secretary; and Frazer V. Sinclair, *Beauty Fashion*, treasurer.

Charles T. Lipscomb, Jr., right, president of Pepsodent Division, Lever Brothers Co., receiving 1953 Award for Showmanship in Selling at recent Sales Executive Club luncheon in New York. Presenting award is B. K. Wickstrum, vice-president and director of sales for Sylvania Electric Products, Inc.

Givaudan gives you experienced help in perfuming men's toiletries

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The market for men's toiletries is a live, growing market . . . rich with opportunities for smart promotion. And the key to this market is fragrance . . . fresh, original scents that rouse masculine interest and respect, and stimulate men's natural pride in better grooming.

Givaudan has developed many fragrances that meet the challenge of this market . . . and we are prepared to help you develop special new scents that heighten and broaden the appeal of your products. We are also prepared to give you experienced counsel in solving any perfuming problems that may arise in the use of aerosol mediums, polyethylene containers and other packaging materials.

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Better Perfume Materials Through Constant Research and Creative Ability

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LOUIS GAMPERT

Gamperts in Europe

Louis Gampert, vice-president of Felton Chemical Co., and president of the Essential Oil Association of the United States, departed for Europe late last month for a visit to the company's French affiliate, Felton Co. (France) in Versailles.

He is being accompanied by Mrs. Gampert, and, after conferences with Leon Gefen, director of French operations for Felton, Mr. and Mrs. Gampert will tour several European countries before returning.

Schenk with White Metal

R. Smith Schenk, former president of Sun Tube Corp., has joined White Metal Manufacturing Co. as consultant, according to Stanley M. Rumbough, White Metal president. He had been associated with Sun Tube for 29 years and was also president of Sun Tube Corp. of Canada and headed the corporation's branch factory in Mexico.

Cunningham with Colton

Quentin N. Cunningham has been appointed field representative of Arthur Colton Co., according to Kenneth B. Hollidge, executive vice-president, and will work in the Pittsburgh territory.

Baker Sales Meeting

J. T. Baker Chemical Co. held its winter meeting of sales representatives at the new administration building at Phillipsburg, N. J. Before the general session, all field representatives were taken through the entire Baker plant in small groups for a further first-hand study of the various chemical process operations.

During the 4-day session, individual conferences were held for each man in the field in order to discuss his problems fully. This was followed by a presentation describing Baker advertising and sales promotion, which is featuring Baker's 50 years of service in Chemistry.

DR. HERMAN SOKOL

Sokol Promoted by Heyden

Dr. Herman Sokol, assistant vice-president, has been elected vice-president in charge of research and development of Heyden Chemical Corp., according to John P. Remensnyder, chairman of the board.

Roerig Sales Policy Change

J. B. Roerig & Co. has adopted a new sales and distribution policy, according to Thomas J. Winn, president, and will sell its products only through ethical pharmaceutical channels. The company will discontinue the practice of selling directly to a limited number of physicians.

James W. Bradley was appointed sales manager for Roerig simultaneous with the sales policy change.

Guthrie in West Coast Plant

Bernard Guthrie has been appointed manager of the Hawthorne, Calif., West Coast plant of Strong, Cobb & Co., according to M. M. Ricketts, president. He had formerly been assistant superintendent of production of the Cleveland plant.

Abbott Sales Changes

Norman C. Moore, manager of Laboratories' District 42 with headquarters at Portland, has become hospital field manager for the Western area. He has been succeeded in the District 42 post by William E. Murphy.

Ben Bear, having recovered from injuries sustained in an automobile accident in November, 1951, has been reinstated as manager of District 7, with headquarters in Los Angeles.

Elmer M. Altmann, District 7 manager during Mr. Bear's convalescence, has been transferred to San Francisco to manage District 9.

Walter C. Dana, a member of the Abbott sales organization for 33 years, has relinquished his duties as District 9 manager and will continue with the company as manager of the San Francisco branch.

Hubata, Acting Med. Director

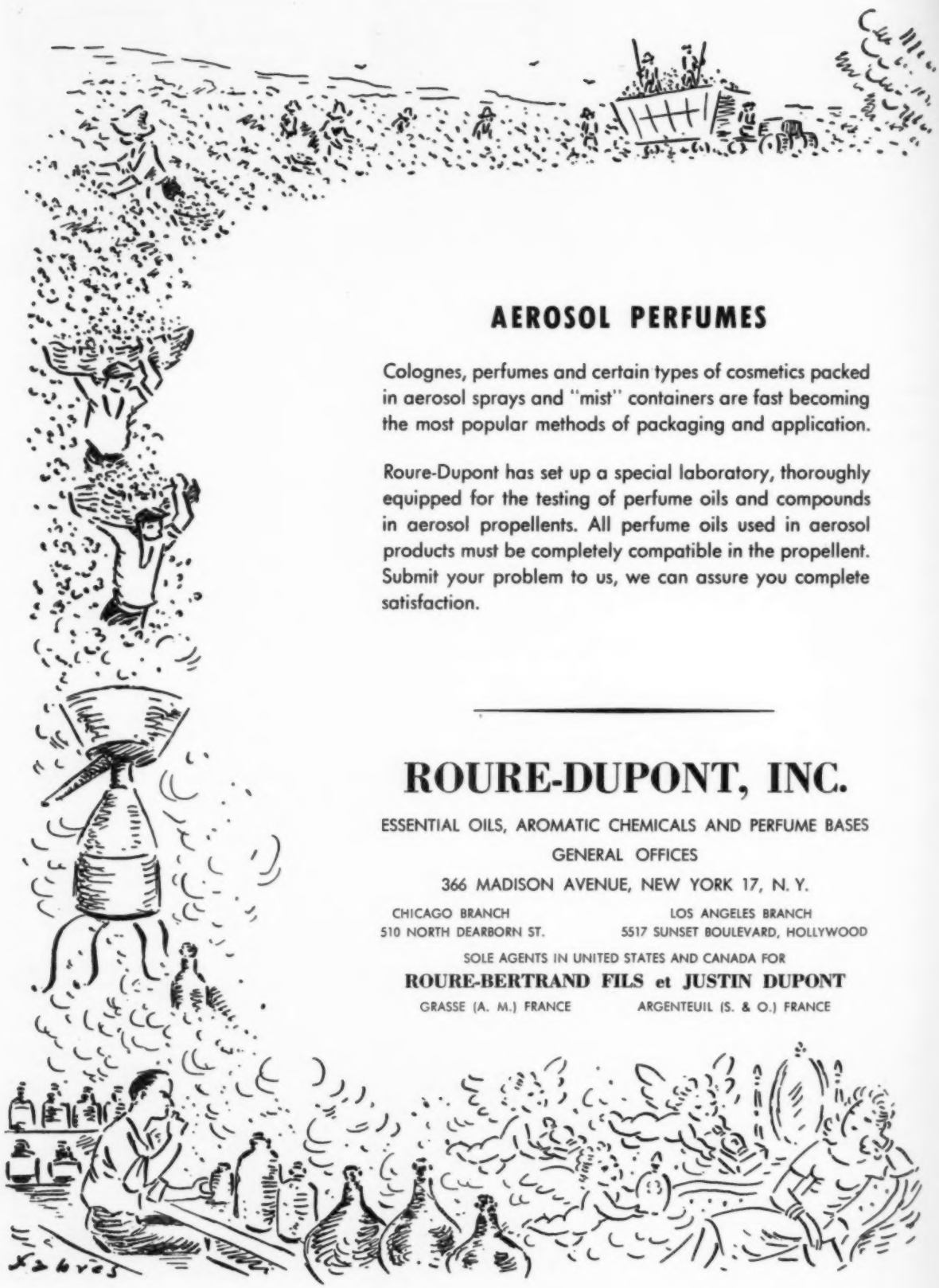
Dr. Joseph A. Hubata has been appointed acting medical director of the Armour Laboratories, according to Edgar L. Patch, general manager. He succeeds Dr. Albert H. Holland, who resigned to become medical director of the Food and Drug Administration in Washington, D. C.

With Pfizer Advg. Staff

William Charles and John F. Hogan have joined the advertising department of Pfizer Laboratories, division of Chas. Pfizer & Co. and are assisting in the promotion of Cortril, Pfizer's brand of hydrocortisone.

Wellden C. Neill and Francis W. Maguire, also with the department, are assisting in the promotion of antibiotics.

Winter meeting of J. T. Baker Chemical Co. sales representatives, held in new administration building, Phillipsburg, N. J. Before general session all field representatives were escorted through entire plant for first-hand study of various chemical process operations.



AEROSOL PERFUMES

Colognes, perfumes and certain types of cosmetics packed in aerosol sprays and "mist" containers are fast becoming the most popular methods of packaging and application.

Roure-Dupont has set up a special laboratory, thoroughly equipped for the testing of perfume oils and compounds in aerosol propellents. All perfume oils used in aerosol products must be completely compatible in the propellent. Submit your problem to us, we can assure you complete satisfaction.

ROURE-DUPONT, INC.

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GRASSE (A. M.) FRANCE — ARGENTEUIL (S. & O.) FRANCE

Clarke Retires from Denver

Robert P. Clarke has retired as president of the Denver Chemical Mfg. Co. and will continue as a director.

Margaret G. Thompson has been elected vice-president and operating head of the company; Elmer A. Sheets, Jr., has become chairman of the board of directors; Harold B. Scott, a member of the board, has been appointed secretary; and Harold G. Hesse, Jr., has been elected a director to fill the vacancy created by the death of Stephen Wood McClave.

Miss Thompson has been associated with Denver for 18 years, formerly as assistant to the president and, until recently as administrative vice-president.

Mary Chess, Distributor

Mary Chess Inc. has become the sole distributor of the Peggy Sage cosmetic line in the United States, according to Joseph A. Danilek and Miss Peggy Sage, heads of the respective companies.

The new arrangement should be mutually beneficial, according to Miss Sage, as the two lines are sold only in the better-type department stores and specialty shops. In addition, the two lines are complementary, there being no items in either line that are competitive.

Mary Chess took over the distribution of Peggy Sage preparations on March 15. The line is now being distributed under the name of a new company—Peggy Sage Corp.—which will be located in New York.

Felton Transfers Berger

Herbert D. Berger, southwestern salesman for Felton Chemical Co., has been transferred to the Chicago office, according to Frank Brumburgh, sales manager. This move is designed to provide additional localized service to Felton's customers in the Midwest.

HERBERT D. BERGER

Drug & Pharmaceutical Committee of Packaging Institute who were recent guests of Ivers-Lee Co. Left to right: John Arata and H. Earl Nack, Sharp & Dohme; Richard J. Hennessy, Lederle; John R. O'Meara, Ivers-Lee; Richard L. Deady, Norwich; Arthur R. Schettel, Squibb; James P. Measday, Ivers-Lee; Frank McOmber, Abbott; Dr. David M. Ashkenas, Wyeth; Frank S. Feussner, Ivers-Lee; John Cherepow, Hoffmann-LaRoche; Dr. John C. Bird, Lederle; Oscar P. Morris, Winthrop-Stearns; and Lloyd I. Volckening, Ivers-Lee.

Levi in Europe

Leon Levi, secretary and assistant general manager of Max Factor & Co. left Hollywood March 16 for a two months' tour of the firm's branches and distributing offices in Europe. He will spend time with executives in England, Ireland, France, Germany, Belgium, Holland, Switzerland and Italy.

Fallek Transfers Offices

Fallek Products Co., Inc., transferred its offices to the 21st floor at the same address, 165 Broadway, New York 6. The telephone number remains unchanged—BArclay 7-7939.

Lundquist with Tamms

Al Lundquist, formerly with Innis, Speiden & Co., has joined Tamms Industries as sales representative in the Chicago area.

Davis with D&O

Jay Davis has joined the sales staff of the Chicago branch office of Dodge & Olcott, Inc. where he will work primarily in the metropolitan area.

JAY DAVIS

Visit Ivers-Lee Plant

Sixteen members of the Drug and Pharmaceutical Committee of the Packaging Institute were guests of the Ivers-Lee Co. recently. Lloyd I. Volckening, president, acting as guide and host, conducted a tour of the two Ivers-Lee unit-packaging plants. They were shown how powders and creams are packaged in separate air-conditioned, humidity-controlled rooms and how packages are vacuum tested to detect flaws.

After lunch the Committee was escorted to Kenilworth, N. J., where it toured White Laboratories as the guests of James DeCesare, president.

New Plant for Amer. Can

American Can Co. has started construction on a new 60,000 square-foot plant at Denver, following groundbreaking ceremonies at the plant site. The plant, according to M. P. Cortilet, vice-president of the company's central division, will produce millions of cans to supply the needs of brewers and food processors in some 25 cities throughout the Rocky Mountain area. It will have an annual rated capacity of 125 million containers to serve important canning centers in Colorado, Wyoming, Western Nebraska and New Mexico.

Loynd Heads CAI Committee

Harry J. Loynd, president of Parke, Davis & Co., has accepted the chairmanship of the Drugs and Pharmaceuticals division of the Committee of American Industry, according to Colby M. Chester, chairman. He succeeds Dr. Ernest H. Volwiler, Abbott Laboratories president, who will remain as one of the division's sponsors.

Faster Capping!

To get more cases per hour from your lines probably would mean buying a stronger cap—a cap that won't chip or shatter when you step up line speeds.

That could mean a more expensive cap, of course. But it doesn't have to. You can get that improved performance with Armstrong's Hi-Tork® Caps—and at no extra cost! Sure, they're slightly heavier, but the real secret of their extra strength is in their design. Each part—dome, thread, and skirt—is reinforced in just the right ratio to the stress it has to take. Result: an extra-strong cap that gives higher line speeds with no increase in breakage.

Test them on your own lines. We'll gladly help set up a test run. See your near-by Armstrong office or write Armstrong Cork Company, Glass and Closure Div., 5304 Charles Road, Lancaster, Pa.

ARMSTRONG'S *"HI-TORK"* MOLDED CAPS

DR. D. C. HINES

ARTHUR R. PEARCE

Lilly Promotions

Dr. D. C. Hines has been promoted to director of the medical division of Eli Lilly & Co., and Dr. Carroll E. Roach, head of the medical department. Dr. Hines succeeds F. B. Peck, Sr., M.D., who was recently named to a new post as director of medical research cooperation, while Dr. Roche is Dr. Hines' successor as head of the medical department.

B. R. Mull has been appointed director of special assignments at Eli Lilly & Co., according to Harry A. Kimbriel, marketing vice-president. He is serving as staff assistant to Mr. Kimbriel.

J. W. Lansdowne has been named manager of the newly created customer promotion services department.

Brewster Named Manager

Arthur J. Brewster has been appointed manager of the Angelus Corrugated Box division at Los Angeles, according to William T. May, Jr., vice-president in charge of container operations at Robert Gair Co. He had formerly been division manager at Gair's Teterboro (N. J.) container division.

Seidel with CSC

Eugene M. Seidel has joined the market development department, petrochemicals division, of Commercial Solvents Corp., according to Frank E. Dolian, manager. He will be located in Terre Haute, Indiana.

ADACIOM Meeting

Paul J. Rodgers, executive assistant to the president of Ozark Air Lines, Inc., was the speaker at the monthly meeting of the Associated Drug and Chemical Industries of Missouri in March. The talk concerned the progress made by airline transportation during the past 25 years and how it affects every business man.

Pearce Appointed by Colton

Arthur R. Pearce has been appointed manager of the company's Chicago office, according to K. B. Hollidge, executive vice - president of Arthur Colton Co. He will make his headquarters at the Colton Branch office, 5807 West Diversey St., Chicago, and will be responsible for the Midwest Territory comprising Minnesota, Wisconsin, Illinois and Indiana, and the area surrounding and including St. Louis.

Wasserman, V.P., Bymart

Harry B. Wasserman, eastern regional sales manager, has been elected a vice-president of Bymart-Tintair, Inc.

Named U.S. Distributor

Richford Corp. has been appointed sole distributor in the United States for Skwish-All Purpose Atomizer, according to Paul E. Roerich, president.

Opens Cleveland Office

Emery Industries has opened a direct sales office and warehouse in Cleveland. The company had formerly serviced its northern Ohio accounts through Schibley and Ossmann, Inc., for many years.

William J. Siemens, Jr., who has been handling specialty products in the northern Ohio area, and William C. Sowers have been assigned to the new Cleveland office. They will be responsible for the sale and service on all Emery products including fatty acids and derivatives, plasticizers, textile oils and emulsifiers.

Because of Mr. Siemens' increased responsibility, the southwestern Pennsylvania and West Virginia portion of his previous territory will be added to that of James A. Funk, operating out of Cincinnati.

Van Dyk Exec. Elections

Mrs. S. Isermann was elected president of Van Dyk & Co. at a stockholders' meeting last month. Also elected were Howard Isermann, vice-president and treasurer; Walter Mueller, vice-president and sales manager; and Miss H. V. Shanahan, secretary.

Mrs. Isermann is the widow of the late Dr. Samuel Isermann, a co-founder of the company.

Samuel Agent for Roubechez

Frank Samuel & Co., Inc. has been appointed export agent for Roubechez, Inc., according to David R. Chamberlain, assistant vice-president.

Drug Industry group, visiting in Hawaii, being greeted by Mr. and Mrs. William Fauquier, Honolulu residents. Left to right: Mrs. Fauquier; Mrs. Michael F. Charley & L. M. Timblin, treasurer; Chas. Pfizer & Co., Mrs. Timblin; Michael F. Charley, Standard Pharmacal Co., and president, A.P.M.A.; and Dr. John Closs, A.P.M.A. executive vice-president. Front row: Mr. Fauquier and Mrs. Closs.

Austin Heads Thos. Leeming

Edward B. Austin has been elected president of Thos. Leeming & Co., succeeding John H. McShane who has become chairman of the board. W. Tyler Halsted, formerly treasurer, has been elected vice-president.

Miss Worthington Retires

Margaret Worthington recently retired from the National Drug Co. of Philadelphia as a member of the credit department, after 45 years of continuous service. She was the guest of honor at a luncheon sponsored by the Company's Twenty Year Club on the day of her retirement.

Endlekofer with Wheaton

Alfred M. Endlekofer, formerly president of Fay Wood Corp., has joined the sales department of the T. C. Wheaton Co. and Wheaton Glass Co. and will be connected with the New York office.

Berry, Armour Sales Mgr.

Herbert A. Berry has been appointed sales manager of the Armour Laboratories, according to Richard S. Siers, sales director. He had previously been midwestern division manager.

To Close St. Louis Plant

Warner-Hudnut, Inc., plans to close its St. Louis plant on June 1 owing to recent changes in its distribution system which have enabled the company to consolidate shipping and accounting activities at the main plants in the East.

Williams, Pres., Lane Labs.

O. H. Williams has been elected president of Lane Laboratories, Dearborn, Mich. He recently joined Lane as vice-president in charge of sales, having formerly been associated with Merck & Co. since 1934.

O. H. WILLIAMS

Leading Kremers-Urban salesmen and field and home office management attending annual awards banquet. Back row: Left to right, Ranney, Miller, Clancy, Greb, Kueohle, Stromberg, Swilling, Kammercaad, Werwath, Sutton, Baldridge, and Best. Front row: Sponholz, Herrington, Jones, Johns, Werner, Stauff, Purkerson and Chappell.

Dr. Carson P. Frailey

Dr. Carson P. Frailey, a member of the A.D.M.A. executive committee, who retired in 1952 as executive vice-president and secretary of the Association, died March 13 at his home in Washington, D. C.

After graduation from college, Dr. Frailey served as a practicing pharmacist, then became a representative of Armour Laboratories, and of the H. K. Mulford Co. (later Sharp & Dohme, Inc.). He became executive secretary of the American Drug Manufacturers Association in 1923, later being made executive vice-president and secretary.

Join Pfizer Medical Dept.

Dr. Dale Scholz and Dr. Kenneth Dumas have joined the medical department of Pfizer Laboratories, according to Dr. W. Alan Wright.

Schmitt, V.P., Peerless

Theodore W. Schmitt has been elected executive vice-president, and re-elected to the board of directors, of Peerless Tube Co., according to Frederic Remington, president. Mr. Schmitt joined the company 21 years ago as a salesman and became sales manager and vice-president in 1948.

THEODORE W. SCHMITT

Dr. Marston T. Bogert

Dr. Marston T. Bogert, twice president of the American Chemical Society, and an internationally known authority on synthetic organic chemistry, died March 21 of pneumonia in a Long Island convalescent home at the age of 85 years. He was the last charter member of the Chemists Club, founded in New York in 1898.

Dr. Bogert was one of the nation's outstanding authorities on synthetic perfumes.

Jesse H. Ambler

Jesse H. Ambler, formerly resident vice-president of Merck & Co., died February 26 at his home, 6380 Washington Ave., University City, Mo., after an extended illness. He was head of the St. Louis branch of Merck and its predecessor company, Powers-Weightman-Rosengarten Co., for many years.

He is survived by his son, Morris K. Ambler, and a sister, Mrs. Albert Fitz Randolph.

Dr. P. C. C. Isherwood

Dr. P. C. C. Isherwood, W. J. Bush & Co. Ltd., died on March 3 at his home. He became associated with the company in 1901 as chemist-in-charge of the Ash Grove and Mitcham factories. He became a director in 1915 and, in 1935, on the death of A. W. Bush, assumed the office of joint managing director. In 1941, on the death of J. M. Bush, Dr. Isherwood assumed the post of chairman.

He is survived by a son, and by his wife, Mary.

Strade in Squibb Post

Dr. Henry A. Strade, recently affiliated with Chas. Pfizer & Co., has been appointed an associate medical director of E. R. Squibb & Sons.

No. 1 of a Series

PERFUME THROUGH THE AGES

Two girls pressing lilies for the preparation of etherial oil. Neo-Egyptian, about 859 B.C.
(Photo courtesy Bettmann Archive)

Ancient Egypt was a fabulous mart for rare and exquisite fragrances. Women wore necklaces of scented beads, guests were annointed with streams of perfumes before all ceremonies, and incense was burned to the gods at dawn, noon and sunset. Flowers were pressed in individual households by hand, as shown in illustration above . . . the delicate lily being one of the most popular. To the creative perfumer of today, Lily of the Valley presents an absorbing challenge in fragrance simulation. From the D&O Perfume Laboratories a new specialty . . . PRIMAVERA . . . expresses the gay and vibrant note of these little white bell flowers, so reminiscent of Spring. From Egypt 859 B.C. to America 1954 . . . both PRIMAVERA and the fragrant lily are ever fresh and new.

Our 155th Year of Service

D&O
ESTABLISHED 1798

DODGE & OLCOTT, INC.

ESSENTIAL OILS • AROMATIC CHEMICALS • PERFUME BASES • VANILLA • FLAVOR BASES

Higher solubility
No solubilizer needed
ROCHE RIBOFLAVIN-5′-P

Following extensive research and development, Roche announces the commercial availability of Riboflavin-5′-Phosphate Sodium.

This is probably the most important development in riboflavin since the vitamin was placed in commercial production by Roche in 1941.

The new Roche product has great advantages in the manufacture of vitamin parenteral solutions, elixirs, water-dispersible multivitamin drops and gelatin capsules, and in tablets in which rapidly-soluble riboflavin is desirable.

SPECIFICATIONS

Roche riboflavin-5′-phosphate sodium (riboflavin-5′-phosphate ester monosodium salt dihydrate) in general has the same stability properties as riboflavin.

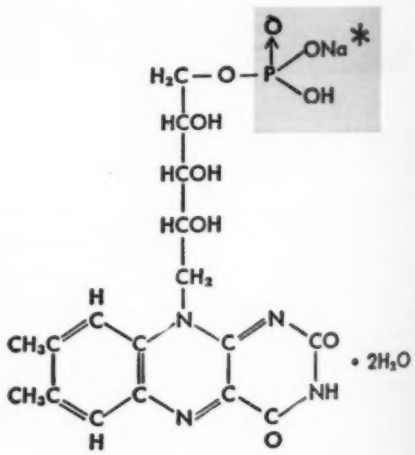
Microbiological, biological and human availability tests show that riboflavin-5′-phosphate sodium (M.W. 514.4) has the full theoretical activity on the molecular basis of riboflavin (M.W. 376.36). Theoretically one gram of the phosphate is equivalent to 0.73 grams of riboflavin. The Roche product contains small amounts of moisture, disodium salt, diphosphate ester and unesterified riboflavin. It has a riboflavin activity of 70-73% by weight.

Immediately biologically active because it is identical with the natural flavin mononucleotide occurring in the "yellow" respiratory tissue enzyme system.

WHY IS IT MORE SOLUBLE?

The phosphate ester group (*in the structural formula at right) is "attracted" to water and tends to increase water solubility.

Furthermore this group can form sodium, ammonium and other salts. Such salts of phosphate esters possess greatly increased water solubility.



-5′- indicates the position of the phosphate radical on the side chain. Linkage at the 5′ or end position in the ribityl chain is apparently essential for full biological activity.

BETTER TASTE

Roche riboflavin-5′-phosphate sodium does not have the intensely bitter taste of riboflavin itself. In fact, it has a different taste which makes it more pleasant in high concentrations. This different taste characteristic is of definite advantage in oral preparations.

ROCHE RIBOFLAVIN-5′-

Better taste
Commercial production
-5′-PHOSPHATE SODIUM

PROOF OF HIGH SOLUBILITY

- Doesn't dissolve
- Solubilizer needed
- Low potency
- Bitter taste

- Instant solubility
- No solubilizer needed
- High potency
- Better taste

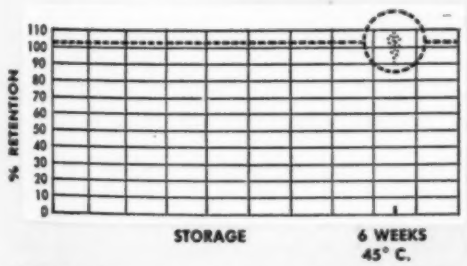
50 mg. (0.05 grams) of riboflavin in 25 ml. of water. 2 mg. per ml.

1070 mg. (1.07 grams) of riboflavin-5′-phosphate sodium (= 750 mg. B_2) in 25 ml. of water. 30 mg. per ml.

You have always had trouble preparing a solution of even 2 mg. of riboflavin per ml. It was necessary to use solubilizers and special techniques. *This is no longer necessary.* Now you can make such solutions easily, without solubilizers, when you use Roche riboflavin-5′-phosphate sodium. See comparison at left which proves the superior solubility properties of Roche riboflavin-5′-phosphate sodium.

You can see and *taste* the dramatic difference with the Roche Riboflavin-5′ demonstration kit. Prove to your own satisfaction that Roche B_2-5′ is far better. We'll be glad to send you one of the kits, without charge, at your request.

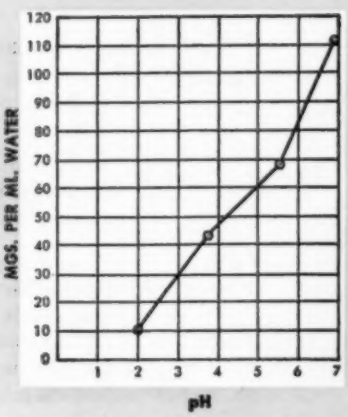
STABILITY of Roche riboflavin-5′-phosphate sodium in B-complex parenteral solutions with or without vitamin C.



These data demonstrate the stability of the phosphate ester in multivitamin parenterals over a wide potency range. No losses have been observed in straight B_2 phosphate solutions with concentrations as high as 30 mg. per ml.

SOLUBILITY of Roche riboflavin-5′-phosphate sodium in water at different pH levels; room temperature.

These data show that solubility of Roche B_2 phosphate sodium depends on hydrogen ion concentration in water. It is useful to note that the solubility of riboflavin U.S.P. (approximately 0.12 mg. per ml.) inserted on this graph would fall just above the base line.



Your Roche representative will be glad to give you a dramatic solubility-taste demonstration. Ask to see it—or send for the kit; it's free. Samples of the new Roche riboflavin-5′-phosphate are yours on request.

CALL ROCHE for VITAMINS

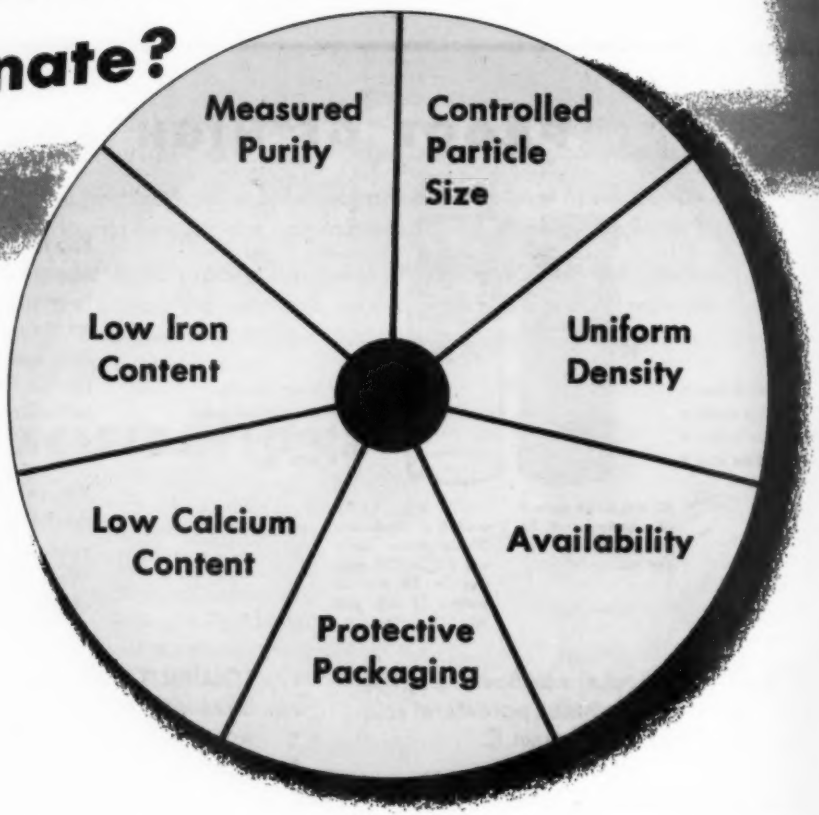
Vitamin Division • **HOFFMANN-LA ROCHE INC.** • Nutley 10, N. J.
NUtley 2-5000

Pacific Coast distributor: L. H. BUTCHER COMPANY
San Francisco • Los Angeles • Seattle • Portland • Salt Lake City

In Canada: Hoffmann-La Roche Ltd., 286 St. Paul Street, West, Montreal, Quebec

-5′-PHOSPHATE SODIUM

What qualities do you want in your Magnesium Oxide and Carbonate?



How many of these qualities are vitally important to you? You get all seven—when you buy Baker's Magnesium Oxide and Carbonate.

If you react Magnesium Oxide or Magnesium Carbonate chemically, or if your final product must meet predetermined specifications, you will be interested in Baker's measured purity typified by the low iron and calcium content of these two fine chemicals.

If you formulate either of these compounds into dry or wet mixtures, the controlled particle size and density will enable you to achieve a uniform final product. This helps to simplify both your manufacturing and packaging problems.

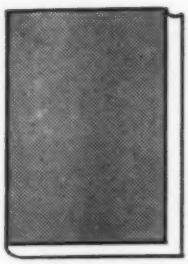
Baker's protective packaging assures you that these chemicals will arrive at your point of use in good condition. Long experience in cooperating with users of Baker's Magnesium Oxide and Carbonate indicates that all seven of Baker's features are both important and essential.

So write for free testing samples and make your comparison. We will gladly quote prices. Address: J. T. Baker Chemical Co., *Executive Offices*, Phillipsburg, New Jersey.

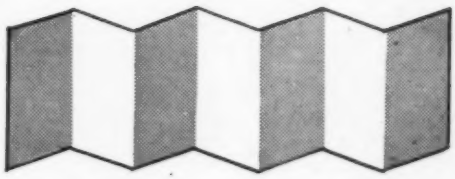
Baker CHEMICAL

Baker Chemicals

REAGENT • FINE • INDUSTRIAL



Trade Literature



Sheffield Tube Booklet

Sheffield Tube Corporation, 170 Broad Street, New London, Conn., has issued a booklet on the products of the company. The booklet describes the various types of collapsible tubes available and gives complete specifications. Internal tube lining or protective coatings, various types of nozzles, and caps and applicators are described. The booklet is profusely illustrated.

Michel Data Sheet

M. Michel and Company, 90 Broad Street, New York 4, has issued a revised data sheet showing typical analyses for 15 types of Cachalot brand fatty alcohols.

Story of Starches

National Starch Products, 270 Madison Avenue, New York 16, has issued a 56-page semi-technical booklet entitled, "The Story of Starches." The booklet presents the amazing story of starches and information on how they are produced, the creation of specialty starches, the unique "man-made" starch derivatives, and the handling of starches.

Pure Shellac Glazes

Gillespie-Rogers-Pyatt Co., 75 West Street, New York 6, has issued a five-page bulletin furnishing valuable technical information on specifications, applications, storage, and handling of Pure Shellac Glazes in the food, drug, and confectionary industries.

Spiceolate Flavors

Dodge & Olcott, 180 Varick Street, New York, has issued a booklet entitled Spiceolate Flavors. Containing 18 pages of listings, formulas and tables for syrup making and salt, the new folder also carries an attractive cover and format.

Gram-Atic Balance

Fisher Scientific Company, 717 Forbes Street, Pittsburgh 19, has issued an eight-page illustrated bulletin describing the Fisher Gram-Atic balance.

Catalogue on Demineralizers

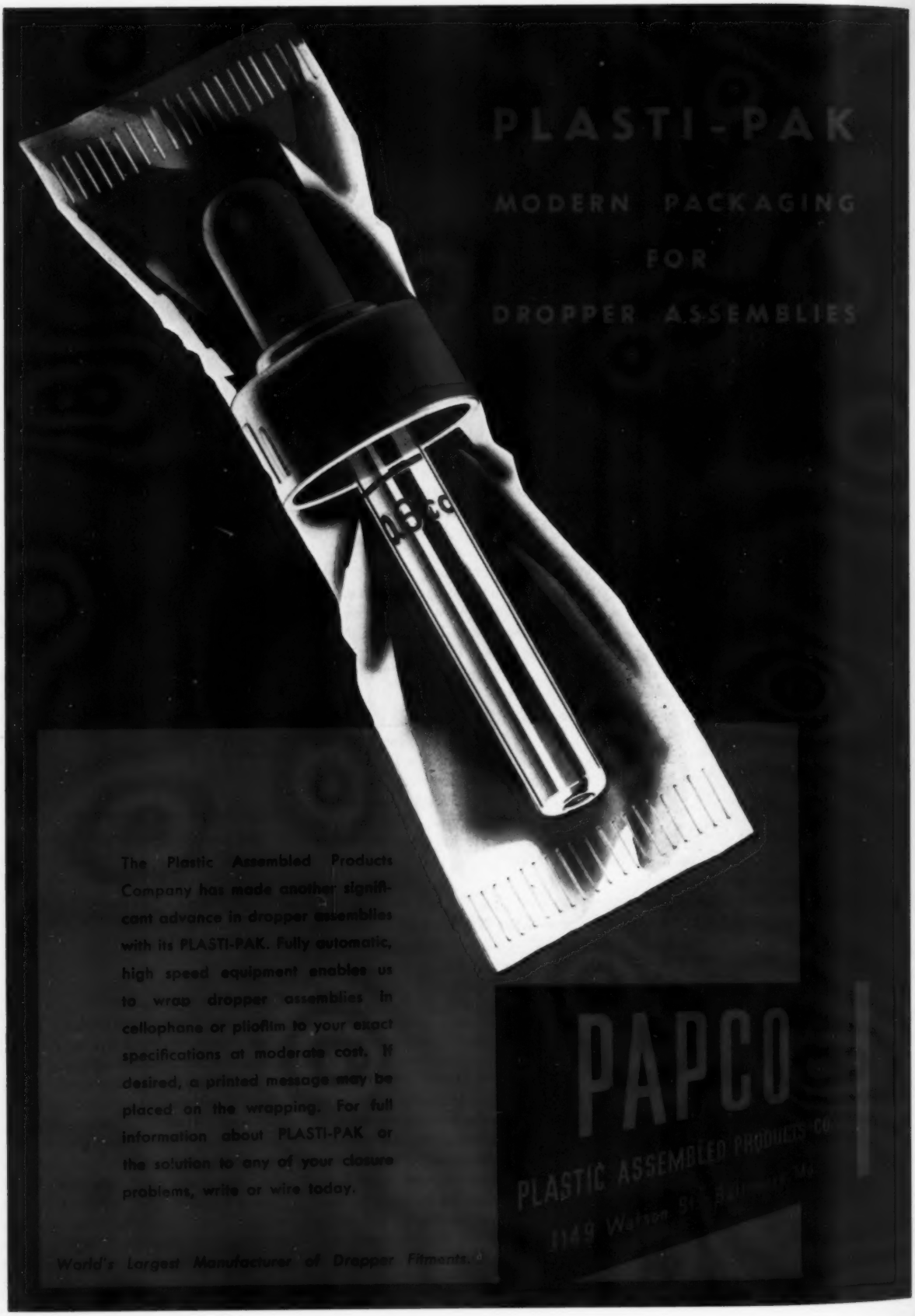
Barnstead Still & Sterilizer Co., 119 Lanesville Terrace, Forest Hills, Boston 31, Mass., has issued a new 20-page catalog which describes the firm's entire line of mixed-bed, two-bed, and four-bed demineralizers for laboratory, hospital, and industrial use. Containing many photographs, drawings, and diagrams, the booklet explains in detail the principles, construction, and operation of both mixed-bed and multi-bed demineralizers, ranging from five-gallon-per-hour laboratory units to industrial installations producing 2,500 gallons per hour. It gives dimensional and performance data on all models and explains the difference between distilled and demineralized water, considerations affecting selection of proper equipment for a given job, and the actual installation.

Aryl-Aliphatic Alcohols

The Research Department of Polak & Schwarz, Hilversum, Holland, has issued a reprint of A New Synthesis of Aryl-Aliphatic Alcohols, by E. A. Drukker and M. G. J. Beets of the company's research department.

Salicylamide Bulletin

Organic Chemical Division, Monsanto Chemical Company, St. Louis 1, has issued an eight-page technical bulletin on Salicylamide, described as an effective analgesic of wide compatibility and good stability in pharmaceutical preparations. Abstracts of European and American literature pertaining to the compound's pharmacology and toxicology, as well as clinical experience with it, make up the major part of the bulletin. The product is said to make possible combinations which cannot be achieved with salicylates of lesser compatibility.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MODERN PACKAGING
FOR
DROPPER ASSEMBLIES
The Plastic Assembled Products Company has made another significant advance in dropper assemblies with its PLASTI-PAK. Fully automatic, high speed equipment enables us to wrap dropper assemblies in cellophane or plioflim to your exact specifications at moderate cost. If desired, a printed message may be placed on the wrapping. For full information about PLASTI-PAK or the solution to any of your closure problems, write or wire today.
World's Largest Manufacturer of Dropper Fitments
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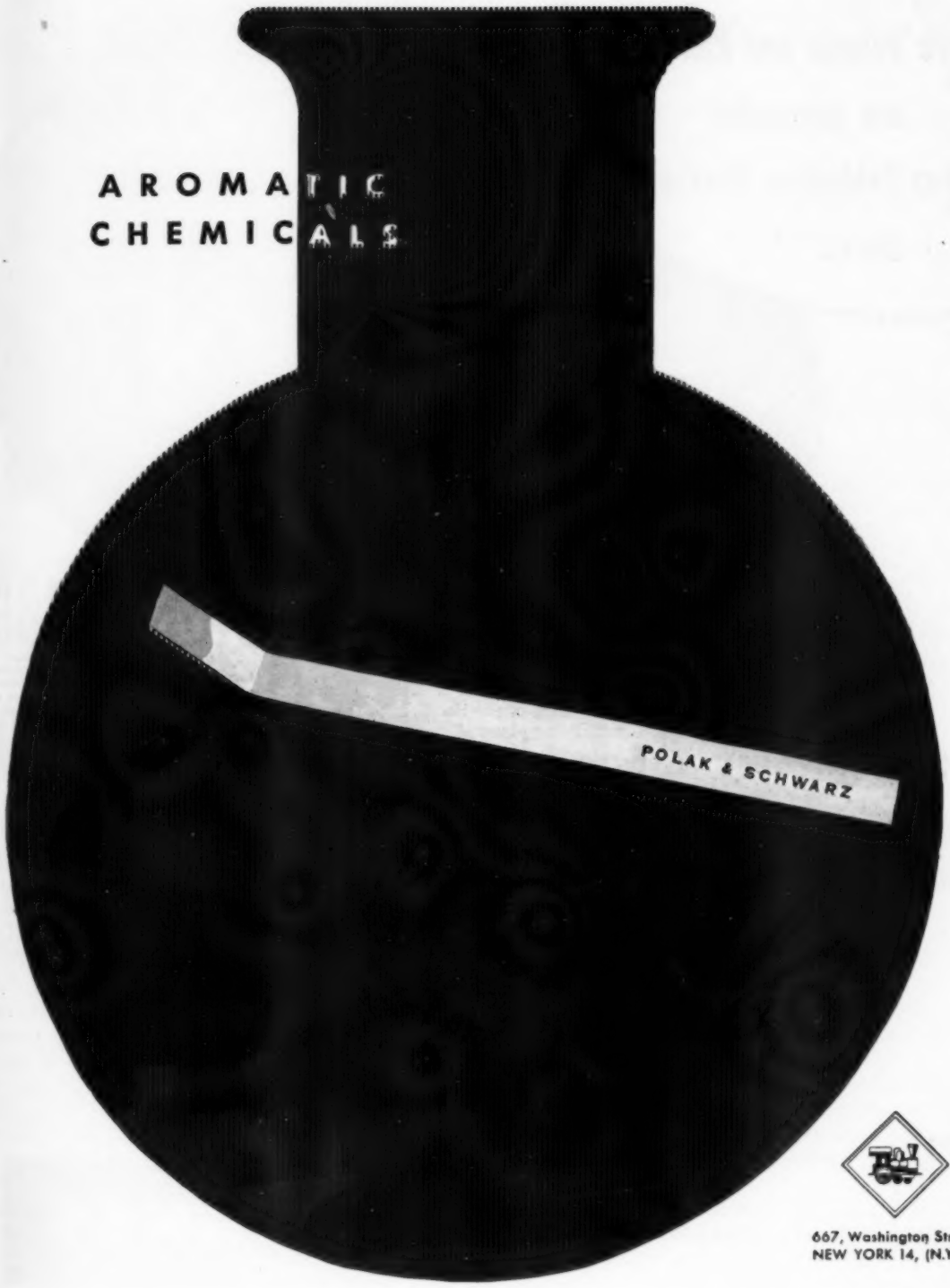
PLASTIC ASSEMBLED PRODUCTS CO.



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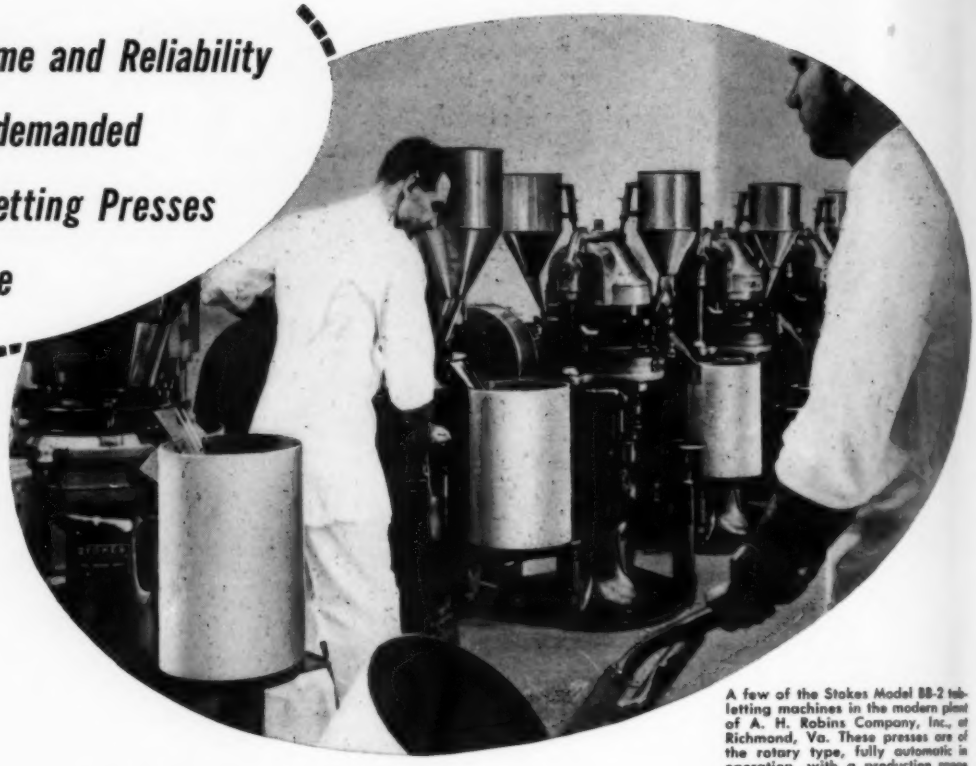
NEW YORK 14, (N.Y.)

PERFUMERY SPECIALTIES - ESSENTIAL OILS - AROMATIC CHEMICALS

Where Volume and Reliability are demanded Stokes Tabletting Presses Serve



A few of the Stokes Model BB-2 tabletting machines in the modern plant of A. H. Robins Company, Inc., at Richmond, Va. These presses are of the rotary type, fully automatic in operation, with a production range of 750 to 1900 tablets per minute.

An industrial show place of the South is the new million-and-a-half dollar plant of A. H. Robins Company, Inc., at Richmond, Va.

This modern plant, handsomely landscaped and fully air-conditioned, occupies almost two acres of space on a single floor. The present annual multi-million dollar business is built on a line of 20 or more products developed from the single prescription item with which the business was started many years ago.

Typical of the modern equipment with which the Robins' plant is furnished is the battery of Stokes BB-2 automatic rotary presses for the preparation of tabletted products in numerous sizes and shapes.

Stokes tabletting presses are noted for the high production schedules which they help users to maintain while producing tablets of uniform size, weight, density and finish. Many Stokes presses have been in continuous service for 20 to 30 years or more.

Punches and dies for Stokes tabletting presses, including carbides suitable for exceptionally long runs or abrasive materials, are made in the Stokes plant. Send for the booklet "How to Save Money on Punches and Dies" and for Catalog No. 801, "Stokes Tabletting Presses."

F. J. Stokes Machine Company
Philadelphia 20, Pa.

STOKES

STOKES MAKES: High Vacuum Equipment, Vacuum Pumps and Gages / Industrial Tabletting, Powder Metal and Plastics Molding Presses / Pharmaceutical Equipment

Management Forum

by Francis Chilson
INDUSTRIAL CONSULTANT

Management Audit

The American Institute of Management has just published the results of a continuous study of 4000 American and Canadian companies, under the title: Manual of Excellent Managements. Through it all like a refrain runs an emphasis on professional management and it repeatedly warns of the dangers of nepotism. For example a detailed report is given on the National Cash Register Co. in which this statement is made:

"Conceived and developed initially through the dynamic aggressiveness of its founder, the company was seriously hampered for a time after his death by an uninspired leadership whose shortcomings were dramatically revealed with the onset of the Great Depression. *With the end of nepotism* and the institution of a more forward looking, *professional management team*, the swing has been in the opposite direction and remarkable progress has since been achieved." The italics are mine.

The manual rates 348 companies according to the following audit method:

	Maximum Rating	Excellence Rating
Economic function	400	300
Corporate structure	500	375
Health of earnings growth	600	450
Fairness to stockowners	700	525
Research and development	700	525
Directorate analysis	900	675
Fiscal policies	1,100	825
Production efficiency	1,300	975
Sales vigor	1,400	1050
Executive evaluation	2,400	1800
Totals	10,000	7500

Please observe the very high ratings placed upon executive evaluation, sales vigor, production efficiency and fiscal policies.

The economic function rating deals with the age and history of the company being investigated; its position in its own industry; its contribution to the national economy; its reputation, etc.

Corporate structure deals with basic organization.

Health of earnings growth deals with operating ratios and growth of earnings in relation to sales, invested capital, taxes etc. and particularly in relation to business cycles and the industry in which it is operating.

Fairness to stockholders deals with the history of dividends paid in relation to earnings and with stockholder relationships in general.

Research and development deals with the organization and financing of research and related endeavors and particularly with the results of research policies.

Directorate analysis deals with the composition of the board, particularly with relation to the directors, experience in the industry and their participation in local and national affairs. It also deals with the contributions of directors to the formulation of company policy and their influence over or subservience to the active managements.

Fiscal policy deals with all matters relating to finance, budgets, cost control, accounting, types of securities, and banking relationships.

Production efficiency deals with the organization and operation of plants, labor relations, employee training, union problems, methods of replacing obsolete equipment and of keeping plant, including buildings up to date.

Sales vigor has to do with marketing policies and their effectiveness, pricing policies, selection and training of marketing people and executives.

Executive evaluation applies to the selection and training of executive personnel all the way up to company presidents. It assays the degree to which nepotism plays a part in executive appointments. And it asks the $64 question: "Are there any rules written or unwritten which forbid employment of two or more members of the same family in executive positions?"

MANY Styles AND Sizes

...BUT ALL ANCHOR CAPS HAVE THE SAME QUALITIES

ANCHOR HOCKING makes eight stlyes of metal and molded, screw and lug caps for medicinal and health products, toiletries, cosmetics and household chemicals. Each is designed for specific sealing purposes—all provide dependable, economical, attractive and efficient seals.

The uniformly high quality of Anchor Caps is the result of practical research and engineering, careful selection, testing and control of raw materials, high manufacturing standards and thorough quality control through laboratory tests and regular inspections.

If you package or contemplate packaging in glass let us recommend and send samples of the closures best suited to your particular needs. The services of our Package Engineering and Research Laboratories are also available to help you solve glass packaging problems.

Anchor® C.T. Caps are available in 20 sizes —18 to 120 mm.— lacquered, coated or decorated. Deep rolled thread contacts underside of glass thread, exerts even pressure, effecting a uniformly tight, dependable seal.

ANCHOR HOCKING

GLASS CORPORATION
LANCASTER, OHIO
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The Most Famous Name in Glass

You will be interested to learn that several firms in the drug, soap and cosmetic industries achieved excellent management ratings. These are Merck, Abbott Laboratories, Colgate, Procter & Gamble, Chesebrough Manufacturing Co., Bristol Myers, American Cyanamid Co., Johnson & Johnson, Parke Davis, Pfizer, Smith, Kline, and Sterling Drug. Since the companies discussed are all listed companies it is obvious that the list is not by any means representative of the industry. I know a number of unlisted and privately owned firms in this industry that are as well managed as any of these. Still when you realize that out of 348 corporations representing the entire nation, twelve are drug, cosmetic and soap houses, our industry or industries didn't make such a bad showing.

Implicit in the foregoing survey is the belief that public corporations are public trusts and hence should be managed objectively, without favoritism, by the best possible managerial talent that can be recruited.

Traffic

Freight rates on all carriers have been increasing steadily since the war and all carriers are clamoring for still higher rates. I'd never thought I'd live to see the day when freight, cartage and warehousing charges would exceed in a good many companies the total of factory labor and overhead expense. In many plants where this is now the case, the fact is not recognized because financial statements combine material costs with labor and factory overhead in arriving at ex-factory cost or cost of sales. Shipping expense, if it is set forth as a separate item, is usually stated as a percentage of sales. So stated conceals the fact that shipping expense is now one of our major items of expense. In some plants shipping expense is equal or in excess of the amount spent for advertising. The traffic manager therefore, from the standpoint of the amount of money spent under his sanction, is becoming a more important guy than the personnel manager, the advertising director or indeed the plant manager.

But many plants—big shippers too—have no traffic manager at all or at best have only a more or less qualified rate clerk. In many plants where they do have traffic managers they are regarded as damn nuisances. It can be said without fear of refutation that nobody outside the traffic department—where there is one—understands traffic because the ordinary norms of measurement do not apply. In thinking about traffic percentage increases or decreases in freight expense can be not only meaningless but dangerously misleading. In one case for example certain irrevocable decisions were made in regard to plant location on the basis of an unsubstantiated statement that freight costs in a particular territory had increased fifteen per cent. The fact was that in a good part of the territory served by the plant freight rates had increased by as much as seventy per cent owing to surcharges on small shipments. In still another case a traffic manager was called on the carpet because freight expense had suddenly shot up between one period and another even though the tonnage shipped had actually declined. Investigation showed that the sales department without consultation with traffic had adopted a smaller case and different packing and in so doing had switched the entire tonnage into a different and higher classification.

Freight and warehousing costs are unnecessarily high because of sales department insistence on delivery service that the customer does not need. In the majority of cases a delay of three or four days in receiving a shipment makes no difference to the customer but the salespeople insist upon making uneconomic promises and the result is that shipments are made on an LCL basis that could have been made as part of a pool car or truck. In this the salespeople have the backing of management. Management is told that unless one- or two-day delivery is provided competition will get the business. (This attitude doesn't properly evaluate the effect of advertising or the validity of trade names.) But management falls for it every time. But when the freight bills are totted up the traffic manager catches hell because of increased freight and handling charges. The traffic manager is always caught between the frying pan and the fire. I feel sorry for the poor bastards; they get hell if they do and more hell if they don't.

The time has come when the traffic manager must be made part of the management team and we must support him with the same kind of engineering thinking that we have hitherto applied to production. The traffic manager should become a distribution manager. He should be included in all discussions of new packaging; methods and materials of packing; shipping room materials and procedures; outlying warehouses, branches and depots. In short he should have a hand in everything that has to do with the product from the time it is packaged until it is delivered to the customer. Your traffic manager or distribution manager can save you a lot of money if you give him a proper break.

Observation

It is amazing to me how unobservant most people are. They look but they do not see. Most people are Watsons not Holmes. Clear, comprehensive observation is the core of success in every undertaking. It should be the basis alike of employee and executive training. The history of chemical and engineering research is replete with the successes of individuals, who in repeating the work of their predecessors saw what their predecessors did not. I have seen many plant managers go through their plants without seeing dirt, disorder and incompetence all around them. They looked all right but they didn't see anything. Now observation is a natural faculty and it can be learned by anyone who can concentrate. Louis Agassiz, the great naturalist used to exhibit a stuffed fish to his students and ask them to make a written list of every detail they noticed. Some students would turn in a list of ten observations; some twenty; some a hundred. Agassiz would repeat the test for several days, at the

"The NEW Installations are COLTON"

Quality has made these brands famous around the world and economical production has brought them within the reach of every household.

Today, and every day, millions of these tablets are produced on Colton No. 241 Double Rotary Tablet Presses.

Turning out more than a million and a quarter tablets every working day, the No. 241 continues to set the pace for high-speed production of well-made tablets.

If your tablet-making project calls for highest manufacturing quality plus highest production speeds, see the Colton No. 241 Double Rotary Tablet Press. Its performance has no equal.

ARTHUR COLTON COMPANY

DIVISION SNYDER TOOL & ENGINEERING COMPANY
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Offices in Principal Cities Throughout the World
Specialists in Pharmaceutical and Packaging Machinery for Nearly 70 Years

TABLET COUNTERS · COATING STANDS · GRANULATORS · MIXERS · OVENS · TUBE FILLERS

end of which period the good observers would turn in lists of several hundred details. Many of his students saw no more after the third trial than they did at first and they were eliminated as potential naturalists.

Doubtless you think you are a good observer. Maybe you are. But try this. You know your own office and everything in it—presumably you have occupied it for several years—so go outside now and make a list of everything in it in complete detail. By complete detail I mean not merely a list of major items such as a desk but its size, form, color, smell, construction, number of drawers etc. I think most of you will get a hell of a shock when you check your list.

Why Is Truth So Hard to Sell?

The advance of communism all over the world makes me wonder about the old adage: "The truth will prevail." Communism is based upon a lie. Marx and Engels taught that the rise of organized, mechanized industry was accompanied by a parallel impoverishment of the working people. English Socialists made this lie the core of their doctrine in the 1840's and pointed to the appalling industrial conditions of the 1830's as proof of cause and effect—as inevitable and perpetual effect. And it is only within the last twenty-five years that the socialists began to realize that the doctrine they stood for had no basis in fact. But the communists still teach the same doctrine, even though their leaders do not practice it, and they persist in promulgating the lie in spite of visible evidence to the contrary in every civilized country in the world. Even in this country many of the trade unions and thousands of misguided people still believe that "the rich get richer and the poor get poorer." What is there so appealing about a lie that so many people will accept it in spite of the evidence of their own senses?

The following information is supplied by manufacturers of the equipment described and claims made below by these manufacturers are passed along for what they are worth. Presentation of such notice in this department is not to be taken as endorsement of the claims or of the equipment.

Staples Bulletin

International Staple & Machine Co., 801 Herrin Street, Herrin, Illinois announces the release of a new eight-page, two-color booklet, No. Q-501, on International Staple Queen packaging machines, a large semi-automatic model. The staplers illustrated and described in the brochure close center-slotted cartons top and bottom simultaneously, or will close tops only or bottoms only, as needed.

The company has listed specifications on carton size capacity, available adjustments, number of closures per hour, and safety devices. A page is devoted to the exclusive Retractable Anvil staples and their operation.

Other points discussed in the booklet include floor space requirements, loading, carton re-use, operation of the machines and their conveyor units. Sizes of cartons the models will handle, plus carton specifications, facts about wiring, air pressure, air consumption and prices are detailed.

Copies of the new booklet are available on request.

Pneumatic Scale's Velocitron

The Velocitron Packager is a highly efficient combination machine for handling the operations of: carton blank feeding; setting up of the carton in continuously moving pockets; sealing the bottom flaps; measuring the product by volume; depositing fill load into cartons and glue-sealing the carton top flaps. A fine, sift-proof package is produced at speeds ranging up to 300 per minute, without the complication of carton transfer from one mechanism to another.

Volume measuring is done through use of adjustable flasks mounted on a turret which rotates in synchronization with carton pockets. The flasks discharge a measured volume of product into the bottom-sealed cartons as they travel in a semi-circle around the end of the machine.

Built into the Velocitron Packager is a weight control apparatus made up of the following: (1) A Pneumatron Check Weighing Device; (2) A volume adjusting device which, by means of a reversible motor, changes the volume of all 12 measuring flasks simultaneously; (3) A combination weight recording and control device which acts on a signal from the check weigher to actuate the volume adjusting motor. Through use of this system, package weight variations caused by density is reduced at least by one-half.

A Pneumatron weighing head is mounted directly below one of the twelve measuring flasks so as to rotate with it. Product is discharged from the flask into a receptable where it is quickly weighed and deposited into the bottom sealed carton below. The other eleven flasks discharge into their respective cartons independently of the check weighing operation. The receptacle which receives the fill load to be check-weighed is rigidly mounted to a stiff cantilever assembly of parallel spring bars. Deflection rate is very small, in the order or two to three thousandths of an inch per ounce. Damping apparatus is used to absorb vibration.

Coupled with a small deflection rate is the fact that the weighing assembly is very light, which reduces momentum to a minimum. Result is a highly responsive and rapid weighing mechanism. The position of the deflected receptacle measures the exact weight of the goods by the commonly used "air gage" principle. Change in the deflected position produces rapid changes in air pressure, at something like a pound per square inch for every sixteenth of an ounce, in receptable content weight. These pressures are fed as a signal to the volume adjustment mechanism.

When the checked load is found to vary from predetermined allowable limits, automatic correction of all the flask volumes takes place during the next revolution of the turret. One cycle of the turret is required for

UP TO 50% FASTER PACK-FILL —WITH NO DUST—NO WASTE

OF POWDERED PRODUCTS IN CANS OR JARS...

Stokes & Smith Model HG-84
Automatic Duplex Filling Machine
with Auger-Vac Attachment.

AUGER-VAC EQUIPMENT

THE COMBINATION OF AUGER AND VACUUM FEED

● For fast, dustless auger feed filling of hard-to-pack products such as coffee, non-fat milk powder, cocoa, flour and dehydrated foods, select S & S Auger-Vac equipment.

Operation is simple: A vacuum is first drawn on the container by a motor driven vacuum pump. The auger head then accurately tight packs the desired amount of product. Containers may be cans or jars of any air tight material.

S & S Auger-Vac equipment may be used with the STOKES & SMITH Single Unit Universal Filling Machine, or with the automatic fillers for higher production. Speeds up to 100 per minute.

- **FROM 1 OZ. TO 1 LB.**

  QUICK EASY CHANGEOVER OF PACKAGE SIZES

- **FROM 1 OZ. TO 5 LB.**

Stokes & Smith Model
G-1 Single Unit Universal Filling
Machine with Auger-Vac.

STOKES & SMITH CO.

4912 SUMMERDALE AVE., PHILADELPHIA 24, PA.

Pacific Coast: SIMPLEX PACKAGING MACHINERY, INC., 534 - 23rd AVE., OAKLAND 6, CALIF.

SUBSIDIARY OF FOOD MACHINERY AND CHEMICAL CORPORATION

fmc TRADE MARK

check weighing and another for correction which means the complete operation occurs 10 to 12 times per minute, or once in every case of 24 cartons.

Recording and Control Mechanism

This device receives the air pressure signals from the Pneumatron weighing head and translates it into action corresponding to weight of measured load. Four timed electrical switches are actuated by relayed air pressures and serve to control the reversible motor which simultaneously adjusts the twelve telescoping flasks. Each switch is set to actuate at the particular pressure corresponding to the weight correction to be made, and reveals such action through light signals on the panel.

Continuously fed heat-sensitive recording tape receives the imprint-dot from a heated filament open as each fill load is check weighed. This records the actual weight of every 24th fill load by noting the extent of pen travel caused by the air pressure from receptacle deflections.

The control panel is furnished with manual control buttons for adjusting flask volume in either direction. As the machine is started these controls are used to bring the load pattern within limit lines as shown on the recording tape. An air gage reveals the varying air pressures corresponding to the checked weights of product.

With the application of Pneumatron Weight Control, there is no additional packaging costs incurred other than the relatively small initial investment. Speed, floor space, number of operators and efficiency remain the same, yet the loss from inaccurate weights can be cut in half.

The Velocitron Packager offers this outstanding advantage of great savings, plus the features of an automatic watch over package weights, as well as a visible registered record of weight variations. It is the result of the combined efforts of the engineering staffs of Pneumatic Scale Corporation and the Canadian Subsidiary, Delamere & Williams Company, Ltd., Norfolk Downs, Mass.

New Hot Water Storage Heater

A new 48-page catalog, offered by The Patterson-Kelly Co., Inc., East Stroudsburg, Pa., pictures and describes the complete line of P-K hot-water storage heaters and presents useful information on piping arrangements and installation data.

Horizontal and vertical heaters in steel, copper lined, copper-silicon, cement lined, clad and galvanized construction, as well as the low-flow design are each cataloged as to weights, dimensions, construction details, and capacities—with conversion tables.

Piping diagrams are given for high and low pressure steam systems. Also included is a step-by-step guide for setting up and connecting a storage heater.

Listed also are average water requirements of typical hot water fixtures in various types of buildings with examples to show how hot water requirements may be calculated, capacity requirements determined and heaters specified.

A copy of this Catalog, Number 18, may be obtained by writing, on your letterhead, to The Patterson-Kelly Co., Inc., 368 Warren St., East Stroudsburg, Pa.

Tank Cover

The "Kold Vat" described in a four-page bulletin recently released by Cherry-Burrell Corp. is a general purpose vat that can be used to heat, cool and mix food products, pharmaceuticals, cosmetics, etc. By means of an accurately calibrated measuring bar, liquid volume can be determined.

Features of the "Kold Vat" include stainless steel product contact surfaces, covers and bridge; low rail height for easy dumping, observation and cleaning; and a special channel-type heat transfer surface that can be used with steam, hot water, cold water, "Freon," ammonia, etc.

For a copy of Bulletin G-495, write to Cherry-Burrell Corp., Dept. AS-16, 427 W. Randolph St., Chicago 6, Ill.

Miniature Rotary Filler

The MRM Company has developed a new, fully automatic Miniature Rotary Liquid Filing machine designed to fill accurately all sizes and shapes of containers from 1/8 ounce up to 16 ounces.

Ideal for such products as perfumes, medicines and all liquids sold in small amounts, the MRM Miniature is suitable for vacuum, gravity and volumetric filling. With eight spouts, it is capable of speeds up to 150 containers per minute. The simple maintenance and quick change-over characteristic of the entire MRM line are maintained in the Miniature.

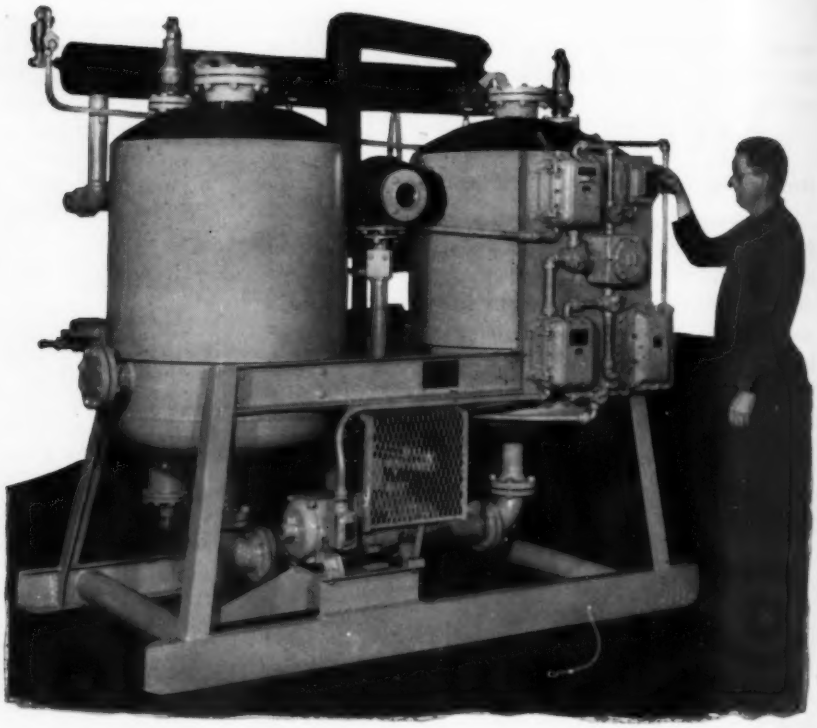
Size of the miniature is 5′ length, 4′10″ tall, 3′ deep. It has a stainless steel tank which is removable for easy cleaning. It is fully adjustable to a full range of containers—sprinkler top glass, open top cans, plastic, etc. Contact parts are of stainless steel and can be supplied in hard rubber, lucite or other materials as required. It is of simple design and sturdy construction, eliminating the need for skilled help for maintenance.

MRM Company, Inc., 191 Berry Street, Brooklyn 11.

Pulsafeeder

A new 24-page two-color bulletin describes Lapp Insulator Company's line of PULSAFEEDER diaphragm-type controlled volume pumps.

The maintenance free feature of no stuffing box is stressed throughout the bulletin, and it is also pointed out that PULSAFEEDER, although basically a pump, also functions as a chemical feeder, a meter, an instrument, a filling machine, a proportioner and a sampler.



Fully automatic instrument air dryer . . . BY-type Lectrodryer

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Lectrodryer machines can drop air to dewpoints below −100°F . . . reduce relative humidity below 10%.

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Besides air drying, there are Lectrodryers that dry many gases and organic liquids, handling pressures as high as 6000 psi.

If you use air, give some thought to drying it with a Lectrodryer. Write for *Because Moisture Isn't Pink,* a booklet describing Lectrodryers and how industries have used them. Request also, *The Moisture In Our Atmosphere,* a technical booklet on the nature, behavior and measurement of water vapor. Both are free! Pittsburgh Lectrodryer Corporation, 309 32nd Street, Pittsburgh 30, Pa.

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If your experimentation requires small quantities of dry air or other gases, a Laboratory Lectrodryer will help you greatly. Rated at 100 cubic feet per hour, these machines have in many cases provided the dryness in research that has led to large savings in production.

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LECTRODRYERS DRY WITH ACTIVATED ALUMINAS

LECTRODRYER

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An imposing list of chemicals handled by the PULSAFEEDER emphasizes its versatility on hard-to-handle chemicals.

The bulletin also covers in considerable detail special liquid handling assemblies which include a completely non-metallic construction of Lapp Chemical Porcelain and fluoro-plastics, a double diaphragm head for liquid chlorine and other hazardous liquids, a completely isolated remote pumping head, a head for gas compression and transfer and an all welded assembly without gaskets.

Both manual and automatically-controlled types are described. In manual control, adjustment of output while in operation is made by turning a hand wheel, while in the automatic design the adjustment is made through pneumatic instruments.

Several pages describe the Auto-Pneumatic Pulsafeeder pointing out its adaptability to automatic volume adjustment from commercial pneumatic instruments. Instruments measuring such process variables as flow, pH, weight, temperature, liquid level, etc. can be used as control for the Auto-Pneumatic PULSAFEEDER.

The bulletin also describes Lapp PULSAFEEDER for chemical water treatment, catalogued Model DE, and Model 200 PULSAFEEDER transfer pumps, the latter being a custom built high volume pump for specific transfer pumping problems.

The Bulletin is identified as Lapp No. 440 and will be sent on request by Lapp Insulator Co., Inc., Process Equipment Division, LeRoy, New York.

New Swan-Matic Capping Equipment

New SWAN-MATIC AUTOMATIC FEED CAPPING EQUIPMENT has just been introduced by W. H. SWANSON & COMPANY, Wilmette, Illinois, which employs new features for versatile, trouble-free capping performance.

Of particular interest is the quick change-over from one size container cap-setting to another size, which is accomplished in a few minutes with no change of parts for average type container, with application of proper size cap driver.

SWAN-MATIC MODEL 53-CF contains a capping unit mounted on a hi-bake enameled stand with substantial conveyor unit having two-way adjustable container rail guards. Variable speed capping up to 60 containers per minute with instant fingertip adjustment control is another feature which can be made during operation of the machine. Height adjustment of the capping head is actuated by a hand wheel on column base and scured by column base double-acting lock. A specially designed three-cam operated container stop and holding mechanism, which is timed with capping head and conveyor speed, assures container positioning on capping operation.

SWAN-MATIC MODEL 53-NC has same features as Model 53-CF with the exception of no conveyor, but with automatic timing and clamping of containers. This capper was especially designed for utilization of customer's present conveyor equipment and has provisions for fitting into existing conveyors having up to 12 inch depth section. Automatic container clamp extends over existing conveyor edge and front conveyor stop rail is furnished for attachment to existing conveyor.

New Twin-Shell Blender

Hoffmann-La Roche, Inc. of Nutley, N. J., manufacturers of pharmaceuticals, has installed a P-K twin-shell blender of 150 cubic feet working capacity, made to specifications by the Patterson-Kelley Company, Inc. of East Stroudsburg, Pa. Purchase of the new, large blender by Hoffmann-La Roche follows about a year's experience with two smaller ones. The first of these was a five-cubic-foot capacity twin-shell blender installed to mix alkaloids in the manufacture of a well known analgesic. This unit replaced a hand-mixing method in which about twenty pounds of components were mixed in open containers for about an hour.

The small twin-shell blender took over this job, handled eighty pounds per batch, produced a uniform blend in twenty minutes, and eliminated exposure of the operator to the sedative effects of the drug.

The company's experience with this five-cubic-foot capacity blender led to the installation of a thirty-cubic-foot capacity twin-shell unit to handle the mixing of sodium ascorbate in batches of 1650 pounds per blending operation.

The combined tumbling and horizontal movement of materials in P-K twin-shell blenders results in efficient and gentle blending. The material is rotated close to the axis, which reduces power requirements to a minimum. The "V" shape provides a convenient central discharge connection, and the large openings at the top of the "V," used for loading, also provide ready access for cleaning.

The third and latest P-K twin-shell blender to be put into operation at the Hoffmann-La Roche plant, the 150-cubic-foot working capacity unit, mixes more than 8000 pounds of ascorbic acid in one operation.

Filler

Packer Machinery Corporation, 30 Irving Place, New York 3, N. Y. announces improvements on its new Model PVN, Push Button Controlled, Pneumatic Vacuum Filler, with the Automatic Filling Cycle.

Packer engineers, foreseeing that possible failure of a part on any automatic equipment may, at some future date, incapacitate the whole unit, have so simplified the machine that it may, at any time, be converted to manual operation, thereby preventing any loss in production time.

The Model PVN, available in six to 14-spouts, handles containers up to one gallon, and manufacturer claims that Push Button Control increases labor output, production efficiency, and reduces operator fatigue.

Elgin EARNS ITS WAY

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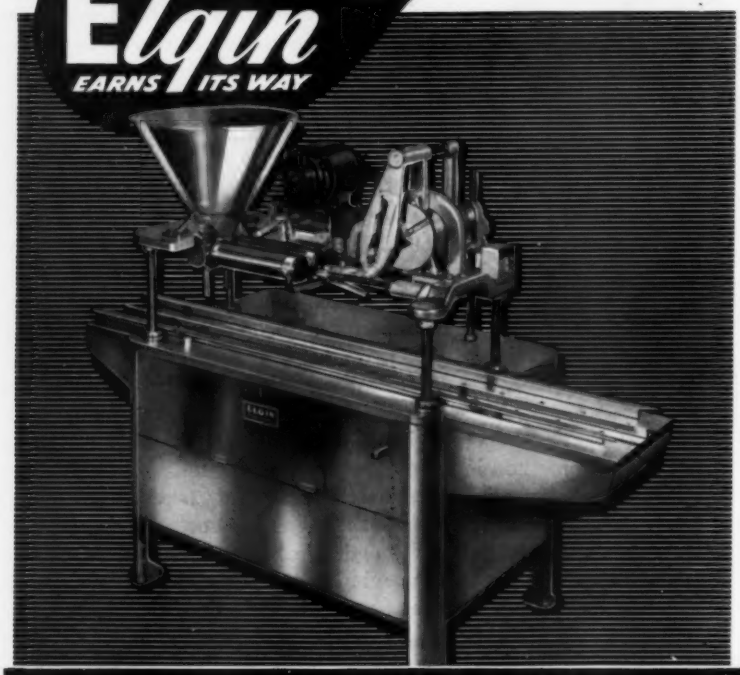

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Earns its way in labor and product savings

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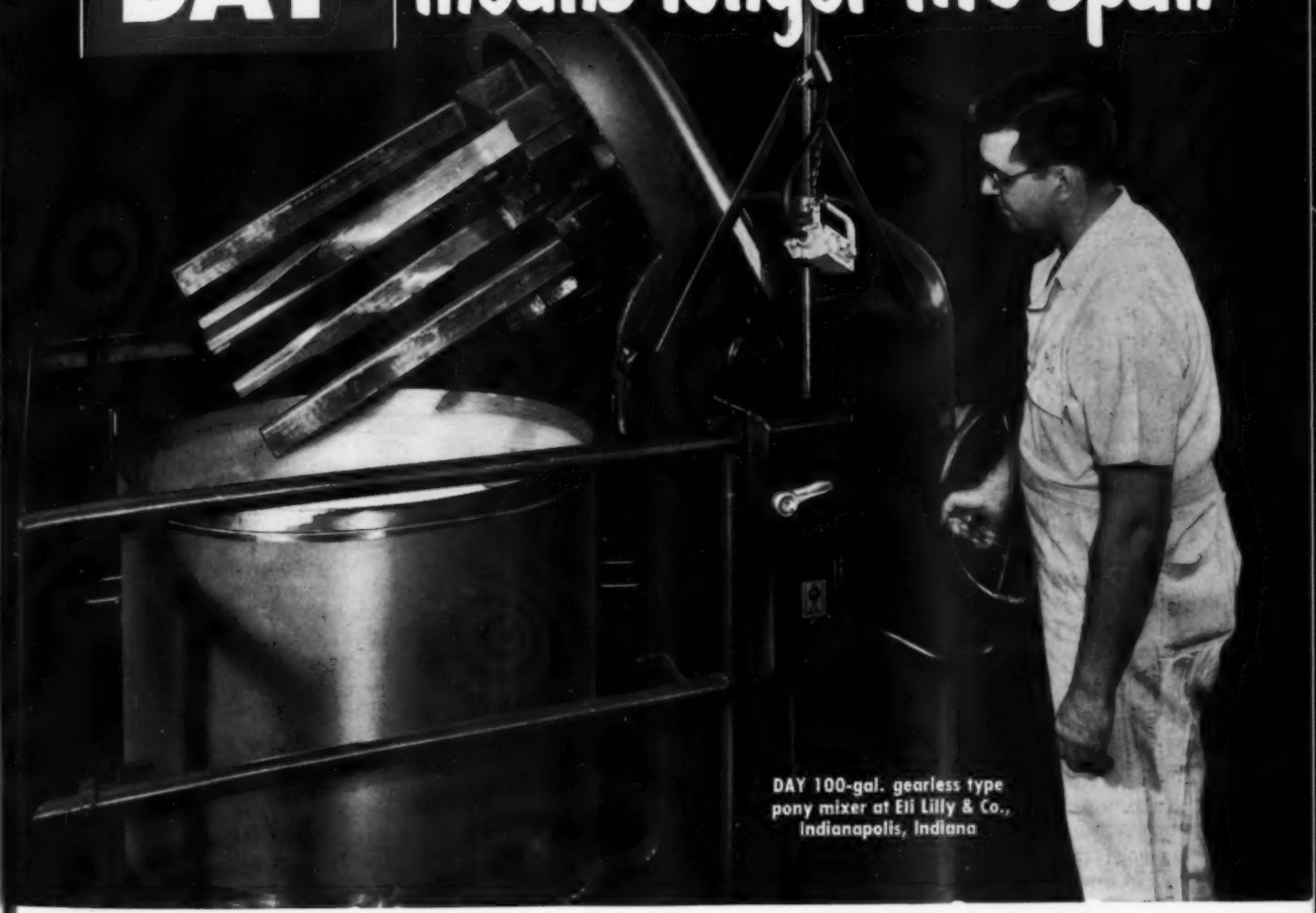

DAY 100-gal. gearless type pony mixer at Eli Lilly & Co., Indianapolis, Indiana

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Advancing Therapy

Oral Hydrocortisone for Sprue

A study has been made by D. Adlersberg, H. Colcher and P. Wang (*Arch. Int. Med.* 92:615, 1953) on the effects of hydrocortisone (compound F) in 17 patients with intractable primary sprue. Two forms of this steroid were used, the acetate and the free alcohol. Hydrocortisone acetate was used in seven courses of therapy, and hydrocortisone free alcohol was used in 21 courses. All patients exhibited various degrees of resistance to standard sprue therapy. The average patient was 49 years old, had sprue for 12 years, showed loss of weight of 32 pounds (14.4 kg.), had a hemoglobin level of 10.9 Gm. and a red cell count of 3,600,000. The patients were divided in two groups. Group 1 included five patients whose condition, because of intractability, had been maintained for periods up to three years with either cortisone by mouth or parenterally administered corticotropin (aqueous or gel). Group 2 consisted of 12 patients who failed to respond satisfactorily to prolonged courses of extensive conventional sprue therapy but who, with one exception, had received no corticosteroid therapy prior to the administration of hydrocortisone.

In Group 1 the replacement of cortisone or corticotropin by hydrocortisone acetate, administered orally in five, and parenterally in two, courses, in addition to "basic" antianemic therapy, resulted invariably in reappearance of diarrhea, steatorrhea, loss of weight, weakness, apathy, and other evidences of relapse. In contrast, hydrocortisone free alcohol given orally to all 17 patients (Groups 1 and 2) was well absorbed from the gastrointestinal tract and promptly controlled the symptoms of sprue. Subsidence of diarrhea, weakness, and apathy; considerable gains in weight, and laboratory evidence of improved intestinal absorption were the chief evidences of clinical remission.

It is pointed out that the oral administration of hydrocortisone-free alcohol has no curative effects. The extent of remission varies with each patient. One to three weeks after cessation of this form of steroid therapy, clinical relapses occurred despite continued administration of liver extract, vitamin B_{12}, and/or folic acid. An effort was therefore made to maintain therapy-resistant sprue patients on minimal doses of hydrocortisone free alcohol compatible with clinical control. Hence at present it may be stated that because of the need of only small maintenance doses and the apparent absence of adverse effects of such doses given over prolonged periods of time hydrocortisone free alcohol represents a valuable therapeutic agent in intractable sprue.

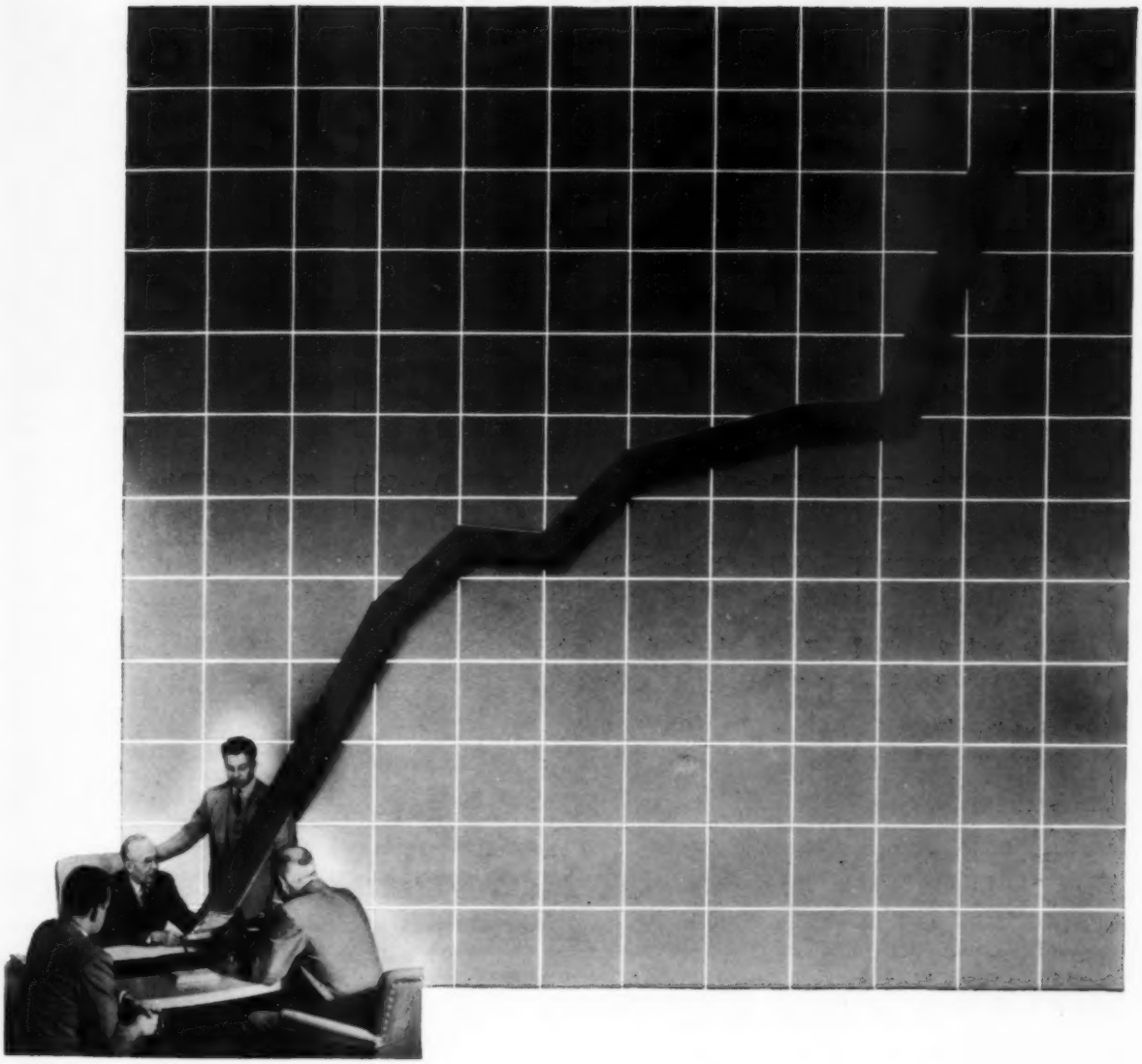
Vitamin E Suppositories in Anorectal Conditions

In the *New York State Journal of Medicine* (53:2376, 1953), M. Ant reports that anorectal conditions characterized by pain, bleeding, and pruritus due to spasm of the anorectal musculature have been relieved by the use of rectal, nonfatty suppositories of alpha-tocopherol and vitamin E. Each suppository contains 5 mg. d-α-tocopherol acetate and 0.6 Gm. vitamin E-rich wheat germ oil in a nonstaining and water-miscible base which was not found to be irritating. No cocoa butter was employed in the base since it was felt that a low-melting fat might macerate the tissues and a high-melting fat would not melt in the heat of the rectum and would therefore not release the alpha-tocopherol.

The mode of action appears to be the local metabolic effect of vitamin E upon muscle and upon connective tissue, relieving, apparently by stimulation of the local metabolism, by healing connective tissue and reducing spasm of the anorectal musculature. From his observations Ant feels that the use of suppositories of alpha-tocopherol and vitamin E would be advisable after hemorrhoidectomy to prevent stricture of the anus; for the treatment of anorectal conditions including pruritus often seen after therapy with antibiotics; and for prophylaxis against antibiotic-induced anorectal conditions by the use of such suppositories whenever antibiotics are administered.

Drug Allergy in Children

Using specially prepared questionnaires, M. Berkowitz, J. Glaser and D. E. Johnstone (*Ann. Allergy* 11:561, 1953) have made a study of allergy to drugs in infants and children. This study included 500 infants and children ranging in age from two months to 15 years. Three hundred thirty-two (66.4 per cent) of the 500 children had a history of allergic disease. The remaining 168 children (33.6 per cent) had no history of allergic disease and were considered as non-allergic. With regard to penicillin, 10 per cent of the allergic children had reactions, whereas no allergic reactions occurred in the nonallergic children. The incidence of allergic reactions to chlortetracycline (Aureomycin) was 3.7 per cent in the allergic, and no such reactions were observed in the nonallergic children. Oxytetracycline (Terramycin) caused allergic reaction in three of 88 allergic children and in none of 24 nonallergic children. Side reactions occurred in both groups, but in the allergic the percentage of such reactions was higher. Sulfonamides also caused reactions in both groups, but here again the frequency was greater in the allergic than in the nonallergic. Diphenhydramine (Benadryl) hydrochloride and tripelennamine (Pyribenzamine) were given mostly to allergic children and caused reactions only in these, not in the few nonallergic children. Acetylsalicylic acid (aspirin), the drug most commonly used in pediatric practice, was taken by 450 children of whom 306 were allergic. Allergic reactions to this drug developed in six. No allergic reactions occurred in the 144 nonallergic children. Codeine was given to 231 children, of whom 191 were allergic. In three of the allergic children reactions developed, urticaria in two and a generalized morbilliform rash in one. Side reactions, such as nausea, vomiting, restlessness, gastric distress, and excitement occurred in seven of the allergic group; no reactions occurred in the 40 nonallergic children. Phenobarbital was taken by 260 of the children, of whom 183 were allergic. There were no allergic reactions to this



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drug. However, 24 showed side reactions. Only one nonallergic child had a side reaction. These studies revealed a high incidence of drug reactions in allergic as compared with nonallergic children, 20 per cent as compared with 2.4 per cent, an eightfold difference. There are indications that side-effects represent in most instances minor allergic reactions.

Anti-Keratinizing Action of Vitamin A

It is pointed out by P. Flesch (*J. Investig. Dermal.* 21:421, 1953) that although there is a voluminous literature on the use of large doses of vitamin A in the treatment of diseases characterized by excessive or abnormal keratinization (e.g. Darier's disease, pityriasis rubra pilaris, ichthyosis, calluses, keratodermas, etc.), nothing definite is known about the mode of action of this vitamin in cutaneous metabolism. It has been shown that vitamin A has an "anti-keratinizing" effect which is manifested in a number of ways: *In vitro* vitamin A prevents the differentiation of epidermal cells into keratin in tissue cultures. In animals, large doses of vitamin A given by mouth, or applied locally, interfere with hair formation and cause reversible baldness. A decreased rate of keratin formation was also suggested by observations made on rats after local application of the vitamin. In human hypervitaminosis A, temporary loss of hair is a common symptom. Finally, vitamin A frequently has been an excellent therapeutic agent in the treatment of different types of anomalous keratinizing processes.

In order to obtain a better understanding of the mode of action, Flesch made *in vitro* and *in vivo* studies of the mechanism of the anti-keratinizing (scale-preventing and depilatory action) of large doses of vitamin A. Since the local and systemic depilatory effects of vitamin A may be due to different mechanisms, various compounds were investigated. Thus, in order to study the effect upon hair growth of orally administered unsaturated compounds, another unsaturated, local depilatory compound, oleic acid, was given to rabbits by mouth. When administered in large doses, oleic acid caused scaling and reversible hair loss on the ears of the animals. The baldness had the same features as the local depilation produced by oleic acid.

The effect of vitamin A derivatives were also investigated. It was found that, in large amounts, the methyl, phenyl ethers and palmitic ester of vitamin A inactivated sulfhydryl groups and the sulfhydryl enzyme succinic dehydrogenase. The methyl ether caused hair loss in mice after local application, while the phenyl ether was inactive.

Hydroxenin and oxenin, synthetic precursors in the manufacture of vitamin A, had the same *in vitro* effects as the ethers of vitamin A. Diminution of scaling in patients with ichthyosis was observed after local application of hydroxenin ointment. Oxenin had no effect.

Flesch is of the opinion that on the basis of his present work, the following theory may be formulated concerning the mode of action of vitamin A in cutaneous metabolism: Vitamin A in excessive doses has a non-specific direct effect upon the epidermis. This effect is probably connected with interference with cutaneous sulfhydryl metabolism. It appears likely that the anti-keratinizing action is due to some unknown metabolite of vitamin A, since related compounds, like hydroxenin, have a similar action. Whether or not the physiologic effects of vitamin A in cutaneous metabolism are due to a similar mechanism, remains the object of future studies.

Veratrum Alkaloids for Hypertension

A. E. Doyle and F. H. Smirk (*Brit. Heart J.* 15:439, 1953) studied the effects of therapy with veratrum given orally in hypertensive patients, using the pure alkaloids neogermitrine and protoveratrine, and various alkaloidal mixtures. They found that minute doses such as 0.1 mg. of neogermitrine or 0.15 mg. of protoveratrine, when given intravenously in hypertensive patients, produced falls of blood pressure to normal or even to hypotensive levels. Similar effects were obtained with subcutaneous or oral administration, provided larger doses (0.4 mg.) were given. The therapeutic margin between toxic and hypotensive doses was not distinctly greater with the pure alkaloids than with mixtures. The alkaloids that lower the blood pressure also lead to the characteristic toxic manifestations. The blood pressure may be reduced more readily without toxic symptoms in labile than in fixed hypertension. Toxic effects have been less frequent when the veratrum alkaloids have been given in small subdivided doses intravenously than when administered by mouth or subcutaneously. Of 65 hypertensive patients in whom veratrum treatment was attempted, 15 obtained a good measure of control over the level of the blood pressure. Although a good control over the blood pressure could be obtained for a time in a larger number of patients, the margin between therapeutic and toxic doses narrowed, and effective treatment could not be maintained in all patients who began well.

Penicillin Combination for Treponemal Diseases

A new combination of three penicillin salts has been tested by C. R. Rein, F. H. Buckwalter, C. H. Mann, S. E. Landy and S. Flax (*J. Investig. Dermal,* 21:435, 1953) for the treatment of treponemal diseases. The combination of the three penicillin salts was supplied in a dry powder form which is stable for at least 24 months at room temperature. It is reconstituted in the vial prior to use with 6.5 ml. of distilled water to provide a volume sufficient for the withdrawal of five separate 2 ml. doses. After reconstitution, full potency is maintained for one week under refrigeration. A single dose of 2 ml. in aqueous suspension provides 300,000 units of potassium penicillin G, 300,000 units of procaine penicillin G and 600,000 units N,N′ dibenzylethylenediamine dipenicillin G. Microbiologic assay determinations indicate that higher and more prolonged blood levels are obtained with a single injection of 2 ml. of this material than with a single injection of 4 ml. of microcrystalline penicillin G jelled in oil with two per cent aluminum monostearate, even though both contain 1,200,000 units of penicillin.

Initial clinical trials in syphilis, yaws and pinta are highly encouraging. Furthermore, an adequate amount of therapy can be administered in a single injection without fear of any increased evidence of serious untoward reactions. On the basis of these findings, Rein and his colleagues believe that a repository penicillin formulation of this type should be of great value in the treatment of treponemal diseases particularly of the nonvenereal types where there may be considerable secondary infection. It is specially indicated in those countries where the majority of the patients must be treated with single injection schedules in rural areas. The high initial level and the prolonged low but adequate level obtained with this combination should make it extremely efficacious in the treatment of gonorrhea when a concomitant syphilis infection is suspected.

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Readers' Questions

Mouthwashes: May I borrow from your experience and ask you to refer me to books, publications or some source of mouthwash formulas. The type we wish is a pleasant minty one in which one of the new anti-enzymes may be incorporated. PERTH.

A review on mouthwashes and gargles appeared in the August 1939 issue of DRUG & COSMETIC INDUSTRY. As far as I know, there is no text devoted to this subject. However, formulas are given in dental reference texts such as Cipes "Prescription Writing and Materia Medica for Dentists" and Grossman's "Dental Formulas." Formulas are also given in the "Pharmaceutical Recipe Book." It should be noted that a basic formula for a mouthwash was given in the patent on anti-enzymes cited in the September 1953 issue of DRUG & COSMETIC INDUSTRY.

In checking through various sources for a mouthwash such as you might be able to use, I came across the following formula for a peppermint mouth rinse in "Remington's Practice of Pharmacy":

Peppermint spirit	**43.20 cc.**
Saccharin sodium	**0.07 Gm.**
Distilled water, to make	**240.00 cc.**

Value of Amphetamine: Will you kindly advise me as to the medicinal uses of amphetamine tablets? MEXICO.

The function of amphetamine as given by the American Medical Association is as follows: Amphetamine sulfate has been widely employed in the treatment of narcolepsy, in controlling the oculogyric crises and various other manifestations of postencephalitic parkinsonism and as an adjunct in the treatment of alcoholism, but its most extensive therapeutic application has been in the treatment of certain depressive conditions, especially those characterized by apathy and psychomotor retardation.

Cream Type Hair Dressing: We are working on a formulation for a cream type hair dressing or brilliantine. The formula we want should be white, soft, smooth, non-sticky, should be slippery and easy to spread. It should impart a nice luster to the hair without being excessively greasy or oily. Such a formula would probably contain at least 50 per cent water, and the chief ingredient would be mineral oil with enough emulsifiers, stiffeners, to give the required consistency. We would greatly appreciate your suggestions on this type of formulation. CHICAGO.

I think a product such as you want can be prepared along the following lines, as suggested by Jannaway:

Mineral oil, white (0.860)	**43.0 parts**
Beeswax, white	**3.0 "**
Stearic acid	**2.4 "**
Triethanolamine	**1.2 "**
Glyceryl monostearate (tech.)	**0.2 "**
Perfume	**1.0 "**
Water	**49.2 "**

The first three materials and the monostearate are warmed together to about 85° C. and the triethanolamine and water, at the same temperature, are then poured in with moderate stirring, which is continued until the mass cools. The perfume dissolved in a little Carbitol (diethylene glycol monoethyl ether) is then stirred in. This formula gives a very stable cream and does not call for excessively vigorous stirring or homogenization.

Hair Reconditioner: We would like to obtain information concerning the formula for an oil emulsion hair tonic, and we would appreciate any such data you could furnish us with. We are particularly interested in one which would contain: lanolin, stearate, liquid petrolatum, triethanolamine and perfume oil. PROVIDENCE.

I think the following hair reconditioner, as originally suggested by Janistyn, is in line with what you want:

Glyceryl monostearate (tech.)	**12.0 parts**
Lanolin	**4.0 "**
Triethanolamine stearate	**7.0 "**
Cholesterol: lecithin (1:1)	**2.0 "**
Mineral oil	**2.0 "**
Distilled water	**73.0 "**

Animal Health

Enteritis in Rabbits

According to a note in *Agricultural Research* (2:10, Dec. 1953) Aureomycin and vitamin B_{12} can help breeders save domestic rabbits. This antibiotic-vitamin combination was added to rations at U.S.D.A.'s Rabbit Experiment Station, Fontana, Calif. As a result, losses of young rabbits from enteritis were reduced by 75 per cent. Since enteritis is the number-one killer of domestic rabbits, the Fontana findings can mean big savings to the rabbit industry.

Success in using antibiotics and vitamin B_{12} in feed for poultry, hogs, and dairy cattle led scientists at the Rabbit Experiment Station to try them against enteritis. They fed a supplement containing 2 Gm. of Aureomycin and 1.8 mg. of vitamin B_{12} per pound, incorporated in a pelleted ration at rates of five and 10 pounds per ton of feed. The test was made over a 17-month period, using 72 New Zealand White does and their 188 litters of 1,379 young. The Aureomycin-B_{12} combination eliminated three-fourths of normal losses from enteritis. Feeding the supplement at the five-pound level was just as effective as at the 10-pound level—and more economical. The antibiotic and vitamin had no observable effect on the rabbits' rate of growth or conception, or on pneumonia and other diseases.

Effect of Penicillin on Turkeys

The effect of penicillin on the growth, feed efficiency and fattening of turkeys has been studied by H. C. Saxena, L. G. Blaglock, W. J. Stadelman, J. S. Carver and J. McGinnis (*Poultry Sci.* 32:721, 1953). They found that continuous supplementation of diamine penicillin at a level of three p.p.m. in the mash during the starting and developing periods significantly improved the body weight of turkeys at 24 weeks. A greater response was obtained in males than in females. When penicillin was included in the diet only from eight to 24 weeks, the turkeys grew at a more rapid rate than those receiving the basal diet but not as rapidly as those which received penicillin throughout the entire experimental period. The removal of penicillin from the diet of the turkeys at eight weeks of age resulted in a decreased rate of growth from eight to 24 weeks to nearly the rate of those fed the basal diet.

In addition to the beneficial effect of penicillin on growth, the antibiotic also produced a significant increase in efficiency of feed utilization by the turkeys, and an improvement in the fat deposition by the females. On the basis of present prices, the increase in weight and feed efficiency due to feeding penicillin would more than pay for the extra cost of feeding this supplement during the entire growing period.

It is concluded, on the basis of the data presented in this report, that the starting and developing mash of turkeys should be supplemented with penicillin.

Neomycin in Veterinary Practice

H. M. Braeutigam (*No. Amer. Vet.* 35:26, 1954) has found neomycin powder to be especially useful and extremely effective as a routine topical application in veterinary practice. A powdered preparation of neomycin, containing 5 mg. of neomycin sulfate per Gm. in a lactose diluent base, was supplied for clinical evaluation. This preparation was said to be suitable for ophthalmic as well as topical application and could be used on any moist surface, in the eye, ear, nose, throat, vagina, uterus, in deep as well as superficial wounds, and on the skin. Braeutigam has found considerable usefulness in a plastic puffer-type bottle for the application of neomycin powder. This method of topical application is satisfactory in all respects. It permits adequate application of neomycin, eliminates waste and is most convenient as well as time saving. Superficial wounds and abrasions can be treated, thus demonstrating to the farmer where and how the powder should be applied. The bottle then can be left with the farmer for further treatment.

Neomycin powder has been used routinely in treating superficial wounds of the foot and hoof. In such conditions, neomycin seems to be especially effective, which may be due to its ability to kill Gram-negative as well as Gram-positive organisms. Foot rot lesions respond well when neomycin powder is applied to the cleaned and trimmed hoof. Braeutigam has found it convenient to apply the powder abundantly and then dress the hoof with gauze bandages which the farmer can remove in 48 hours.

Very good results have been observed when neomycin powder was placed directly into the uterus in cases of metritis, pyometra and retained placenta, where it is important that the therapeutic agent be one which is not readily destroyed by body fluids, pus, or other exudates. In pyometra and metritis the neomycin powder was dissolved in water and instilled into the uterus by means of a syringe and inseminating tube. In some instances estrogens were used simultaneously to aid in expelling the uterine contents.

Comparison of Canine Antelmintics

In a comparison of two canine anthelmintics made by L. F. Whitney and G. D. Whitney (*Vet. Med.* 48:495, 1953), 32 six- to eight-week old puppies and two litters of three-week-old puppies were dosed with varying amounts of tetrachlorethylene and n-butyl chloride once a week for eight weeks. The drugs were given after fasting periods of varying lengths.

Both drugs appeared safe in the usual recommended doses. Both were toxic to anemic, unthrifty, three-week-old puppies. Both were nontoxic to healthy puppies. The effectiveness of the two drugs in eliminating intestinal helminths is approximately equal. Dosing once a week did not harm puppies.

In older puppies, dizziness regularly follows administration of tetrachlorethylene when administered even eight hours after food, whereas n-butyl chloride does not produce such effect.

N-butyl chloride produces more emesis than tetrachlorethylene. Four times the usual dose of 1.5 cc. per 10 pounds of body weight for n-butyl chloride can be given in four split doses one hour apart without producting emesis, whereas the full dose given at one time is highly emetic in action. It appears that emetic effect of n-butyl chloride when given improperly or in too large amounts makes it a much safer drug for home use than tetrachlorethylene.

Preventing Salmonella Infection in Calves

As noted by J. A. Howarth, D. R. Cordy and J. Bittle (*J. Am. Vet. Med. Assoc.* 124:43, 1954), when young calves are assembled from many sources and placed in pens previously used to house sick salves, it readily results in the rapid spread of infectious organisms, especially enteric ones such as Salmonella. Add to this the aggravation of long trips in crowded trucks, and the arrival of calves with definite signs of disease or in the late incubation stages can be predicted.

The studies made by Howarth and his colleagues were concerned with the isolation of *Salmonella bredeney* from calves with this history, its relation to the calf scours complex, and the use of Chloromycetin (chloramphenicol) and streptomycin as prophylactic agents in salmonellosis. Of the 37 calves used in their experiments, 73 per cent were shedding *S. bredeney* in their feces before treatment. They were also showing signs of weakness and various degrees of diarrhea. They were sorted so as to distribute the sick ones equally for the two treatments. In the streptomycin-treated group, 10 calves died. The spleens of seven of these were cultured and in six instances *S. bredeney* was isolated in pure culture. In the chloromycetin-treated group, only one calf died and it also yielded a culture of *S. bredeney* from the spleen. The presence of the organism in the spleen leaves little doubt as to its role in this obviously septicemic disease. It is probable that, whenever adequate bacteriological search is made, Salmonella species might be found to be implicated in the calf scours complex.

According to Howarth and his associates the rapid cessation of symptoms and mortality following Chloromycetin therapy would indicate the feasibility of routine prophylaxis in calves that are carriers of, or exposed to, Salmonella infection. In animals not responding to oral administration of 500 mg. of Chloromycetin daily, the dosage should be increased to 1.0 or 1.5 Gm. daily. In stubborn cases of the disease, the intravenous form of the drug is indicated, especially when septicemia is evident. It should be understood that the use of drugs is not a substitute for correct management practices. Poor sanitation and nutritionally inadequate rations predispose calves to many infections.

The experiments made by J. F. Elam, R. L. Jacobs and J. R. Couch (*Poultry Sci.* 32:792, 1953) were designed to determine the effect of prolonged feeding of an antibiotic upon egg production and hatchability with and without vitamin B_{12}. They found that the addition of penicillin and bacitracin to an all-vegetable protein diet deficient in vitamin B_{12} resulted in increased egg production. The oral administration of penicillin greatly increased hatchability and decreased the number of eggs showing vitamin B_{12} deficiency symptoms, while the parenteral administration of penicillin failed to increase the hatchability of eggs and tended to enhance vitamin B_{12} deficiency symptoms in embryos. The injection of penicillin-in-oil into the birds resulted in increased egg production and hatchability similar to the results obtained by the addition of the antibiotic orally. This could possibly be explained by the fact that the penicillin-in-oil was absorbed more slowly and then excreted into the intestine. The administration of inactivated penicillin (orally and parenterally) increased the hatchability of eggs and decreased the number of embryos which exhibited symptoms of B_{12} deficiency. An explanation for such results is not immediately forthcoming. It seems quite possible that the administration of inactivated penicillin (orally and parenterally) might have increased the bacterial synthesis of B_{12} in the gastrointestinal tract. Inactivated penicillin has been reported to increase growth when injected and to produce a significant decrease in the anaerobe (clostridia) content of chick fecal material when administered orally or parenterally. It is interesting that the parenteral administration of inactivated penicillin decreased the number of embryos exhibiting vitamin B_{12} deficiency symptoms, whereas the injection of active penicillin failed to have such an effect.

When vitamin B_{12} was administered in combination with penicillin or inactivated penicillin (orally and parenterally) an increase in hatchability and egg production was observed in all cases over and above either administered singly. Hatchability was increased to a greater extent than was egg production.

The addition of bacitracin (orally) produced an increase in hatchability and egg production with and without vitamin B_{12}. This was not the case when bacitracin was administered parenterally in the absence of vitamin B_{12}. When bacitracin was administered parenterally in the absence of vitamin B_{12} the degree of vitamin B_{12} deficiency symptoms were increased. The latter was evidenced by the large number of embryos which exhibited typical symptoms of B_{12} deficiency.

Detergents vs. Bloat

It is explained by R. E. Nichols (*Feed Bag*, Oct. 1953 through *J. Am. Vet. Med. Assoc.* 124:35, 1954) that detergents prevent bloat by coalescing the small gas bubbles. This not only reducesthe volume of the frothy mass but increases the specific gravity of the ruminal fluid so that roughage is more apt to stay afloat, thus allowing the water level to lower so that it will not cover the esophageal opening. When hay enters the rumen it remains afloat, grass sinks gradually, but fresh legumes sink rapidly. For preventive purposes, detergents must be found which are palatable and will not interfere with activities of the ruminal microorganisms.

Antibiotics Vs. Anaplasmosis Carriers

The value of prolonged dosages of antibiotics at high levels to eradicate the carrier state in anaplasmosis is indicated in the studies made by E. J. Splitter and J. G. Miller (*Vet. Med.* 48: 486, 1953). They reported that anaplasmosis carrier infection has apparently been eradicated in four known carriers and possibly in four additional carriers by daily antibiotic therapy. Terramycin (intravenous or intramuscular) was used successfully at 5 mg./lb./day in single or divided doses for 12 to 14 days. Aureomycin (intravenous) was used at the rate of 15 mg./lb./day in single doses for 16 days. Blood from these carriers has failed on subinoculations to transmit anaplasmosis for maximum periods of from 60 to 365 days following therapy. All treated animals have reacted negatively to the anaplasmosis complement-fixation test 35 or more days after prolonged antibiotic administreation. One animal tested was found fully susceptible to acute anaplasmosis when reinfected 365 days after therapy.

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Industry's Books

The Cutaneous Manifestations of Systemic Diseases, *by John Godwin Downing, M.D., Professor of Dermatology and Syphilology, Tufts College Medical School, 146 pp., Charles C. Thomas, Publisher, Springfield, Ill., (1954).*

This monograph is a compilation of lectures given to the medical students at Tufts College Medical School and Boston University School of Medicine. It is based on 30 years' observations made in the out-patient departments and wards of various hospitals. Its purpose is to stimulate the young physician to an increased knowledge of dermatology, and the young dermatologist in the relationship between the dermatoses and systemic disease.

Coal Tar And Cutaneous Carcinogenesis In Industry, *by Frank C. Combes, M.D., Professor of Dermatology and Syphilology, New York University Post-Graduate Medical School, 76 pp., Charles C. Thomas, Publisher, Springfield, (1954),* **$2.75.**

The property of carcinogenic potency is widely distributed among chemical compounds. Well over 300 have been found capable of inducing malignancy in laboratory animals, and about 35 capable of inducing benign tumors. An effort has been made in this text to present the carcinogenic nature of certain fractions of coal tar in a practical way, especially as it applies to the workman in industry. The growing chemical industry and world wide investigation of the cause and nature of cancer prompted the preparation of this short text as a source of information for the dermatologist and industrial physician.

Pharmaceutical Emulsions and Emulsifying Agents, *Second Ed., by Lawrence M. Spalton, B. Pharm. (London), 138 pp., The Chemist and Druggist, London, (1953), Cloth,* **7s 6d.**

While the theory of emulsions remains what it was, numerous changes in the commercial availability of emulsifying agents are reflected in the text and in the table of emulgents and their manufacturers, in which nearly four hundred products are listed. In addition, the opportunity has been taken to provide a complete index to the text, thus increasing the usefulness of the work to students, laboratory workers, pharmacists and workers in the pharmaceutical and cosmetic industries.

Veterinary Pharmacology and Therapeutics, *by L. Meyer Jones, A.B., D.V.M., Ph.D., Professor of Pharmacology, Iowa State College, 850 pp., The Iowa State College Press, Ames, Iowa, (1954), Cloth,* **$11.**

The title Veterinary Pharmacology and Therapeutics expresses well the subject matter of this book. The various drugs are considered, first, with regard to their basic pharmacology (pharmacodynamics) and, secondly, to the clinical application of this information (therapeutics). In addition to this qualitative approach, considerable attention has been devoted to quantitative pharmacology, primarily in its therapeutic aspects. The effects of various dosage levels of drugs, not only between different species of animals but also within a given species, have been considered throughout the book. This book deals with drugs and their therapeutic uses. It leaves to more directly related studies the discussion of biologic agents in disease prevention and control, as well as the complete therapy, husbandry, and sanitation needed for successful control and treatment of disease.

Catalysis Volume I *(Fundamental Principles) Part I, Edited by Paul H. Emmett, Gulf Research and Development Company's Multiple Fellowship Mellon Institute, and several contributing authors, 394 pp., Book Div., Reinhold Publishing Corp., N. Y. (1954), Cloth,* **$10.**

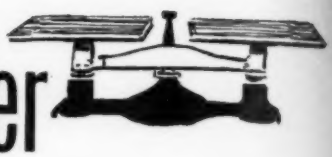
This first volume, in a series, provides research chemists with the best-integrated, most soundly conceived treatise ever published on the physical chemistry of catalysis and catalytic processing. It presents comprehensive discussions not only of long-established ideas and interpretations, but also of the wide range of newer concepts now associated with the field of catalysis. The first two volumes of the series cover all the general approaches and tools used to obtain a basic understanding of both homogeneous and heterogeneous catalysis. Along with fundamental theory, considerable space in Volume I is devoted to catalyst supporters, carriers, and methods of preparation. Volume II concludes the discussion of fundamental theory, and classifies catalysts according to current ideas of solid state physics. Subsequent volumes cover in full detail the principles and possible reaction mechanisms of hydrogenation and dehydrogenation; synthesis of hydrocarbons, ammonia, methanol and higher alcohols; alkylation, isomerization, polymerization, cracking, hydroforming, hydrocracking, and hydrodesulfurization; and finally, oxidation, hydration, dehydration, halogenation, and miscellaneous reactions.

Induction and Dielectric Heating, *by J. Wesley Cable, Consulting Engineer, 576 pp., Book Div., Reinhold Publishing Corp., New York, (1954), Cloth,* **$12.50.**

This book offers a carefully organized treatment of the latest uses and applications of high-frequency heating in industry. Divided into two major sections, dealing with induction and dielectric heating respectively, the book contains sufficient theory to enable the reader to understand fully the basic phenomena applicable to both methods. The approach in each section is similar. Each begins with the fundamental theory of high-frequency magnetic and dielectric fields, and the operating principles of equipment used as sources of electrical energy. Coil and electrode design are then covered fully, together with the construction of mechanical jigs and fixtures, and work handling methods. Subsequent chapters divide the subject into specific applications: forging, melting, brazing, hardening and other metalworking operations in which induction heating plays a part; and to the fields of plastics, woodworking, food processing and others in which dielectric heating finds application. This work will prove of special help to executives in the numerous industries wherein high-frequency heating could be used to solve specific processing problems.

(Continued on page 567)

Compounder's Corner



Elixir of Aspirin

The following formula for an elixir of aspirin has been suggested by F. J. Steele (*Bull. Am. Soc. Hospital Pharm.* 10:515, 1953):

Aspirin	**20.0 Gm.**
Sodium citrate	**60.0 Gm.**
Sucrose	**150.0 Gm.**
Tincture of orange	**60.0 cc.**
Distilled water	**125.0 cc.**
Orange color	**1.0 cc.**
Amaranth solution, one per cent	**0.6 cc.**
Glycerine, to make	**500.0 cc.**

Because of its instability, this elixir of aspirin should be freshly prepared.

Modified Aqueous Elixir

It is pointed out by H. D. Fifer and S. J. Dean (*J. Am. Pharm. Assoc.*, Pract. Pharm. Ed. 14:771, 1953) that the introduction and increasing use of such water-soluble drugs as choline citrate, tricholine citrate, sodium succinate, and potassium succinate in modern medicine, often presents the problem of selecting a suitable vehicle in which they may be dispensed. After considering the factors involved in selecting a suitable vehicle for these drugs, Fifer and Dean suggested the use of the following modified aqueous elixir:

Vanillin	**1.00 Gm.**
Benzaldehyde	**0.30 cc.**
Oil of fennel	**0.60 cc.**
Chloroform	**0.60 cc.**
Glycerine	**50.00 cc.**
Orange flower water	**200.00 cc.**
Saccharin sodium	**0.75 Gm.**
Distilled water, to make	**1,000.00 cc.**

The use of this vehicle is illustrated in the following modified aqueous elixir of choline dihydrogen citrate:

Choline dihydrogen citrate	**250.0 Gm.**
Modified aqueous elixir, to make	**1,000.0 cc.**

Dissolve the salt by stirring in sufficient vehicle to make 1,000 cc.; filter. If coloring is desired, 4 mg. of Ponceau 3R (or other suitable dye) may be added. This product contains in each 4 cc., 1 Gm. of choline dihydrogen citrate. The product is clear, pleasant tasting, and has been stored for periods of six months with no apparent deterioration.

This vehicle also serves to conceal fairly well the extremely unpleasant taste of sodium succinate in the following modified aqueous elixir of sodium succinate:

Sodium succinate	**200.0 Gm.**
Citric acid	**20.0 Gm.**
Distilled water	**15.0 cc.**
Modified aqueous elixir, to make	**1,000.0 cc.**

Dissolve the citric acid in the water; add to the sodium succinate; and dissolve in the aqueous elixir with stirring. Each 5 cc. of this elixir will contain 1 Gm. of sodium succinate.

Improved Calamine Lotion

For the past few years, says J. G. Downing (*New England J. Med.* 249: 976, 1953) he has been using a calamine lotion consisting of:

Zinc oxide	**20.0 Gm.**
Calamine	**20.0 Gm.**
Lotion vehicle, to make	**240.0 Gm.**

The lotion vehicle for the above has the following composition:

Cetyl alcohol	**15.0 cc.**
White wax	**1.0 Gm.**
Sodium lauryl sulfate	**5.0 Gm.**
Glycerine	**50.0 Gm.**
Water, to make	**1,000.0 cc.**

This lotion is a smooth, adherent, soothing emulsion. When a desiccating action is not needed, this lotion vehicle can be used to make the following lotion which provides a good antipruritic and astringent effect:

Camphor	**1.2 Gm.**
Menthol	**0.6 Gm.**
Alcohol	**6.0 cc.**
Polyoxyethylene sorbitan monolaurate (Tween 20)	**9.0 Gm.**
Lotion vehicle, to make	**240.0 cc.**

Castor Oil Emulsion

The following formula for a 50 per cent castor oil emulsion was suggested by M. P. Hall (*Bull. Am. Soc. Hosp. Pharm.* 10:514, 1953):

Castor oil	**50.0 Gm.**
Polyoxyethylene sorbitan monooleate (Tween 80)	**1.0 Gm.**
Flavored water, to make	**100.0 cc.**

Add the Tween to the castor oil, shake, add the flavored water, and shake. The flavored water for the castor oil emulsion is made by adding 0.7 Gm. of vanillin; 20 Gm. of cyclamate (Sucaryl) sodium (133 cc. of the 15 per cent solution or 160 tablets); and 0.6 Gm. of butylparaben (Butoben) to 4,000 cc. of distilled water.

Hall states that two ounces of the emulsion is used in place of one ounce of castor oil. The emulsion is readily prepared by shaking and, although it creams somewhat upon standing, it shakes out immediately.

Osage Orange Wood Extract as a Fungicide

The studies made by C. F. Peterson and E. W. Brockmeyer (*Am. J. Pharm.* 125:303, 1954) were designed to compare the activity of an aqueous extract of osage orange wood with other compounds for antifungal activity as compounded into various ointment bases, particularly against a causative organism of "Athlete's Foot." To prepare the extract dried osage orange wood was extracted successively three times with distilled water heated to 95° C. The combined percolates were evaporated on a steam bath to yield a red-brown amorphous mass.

The compounds were tested against *Trichophyton mentagrophyles*. The osage orange extract was not fungicidal in the highest concentration possible. However, a 20 per cent ointment of the extract in a vanishing cream showed marked fungistatic activity. There was moderate activity in hydrophylic ointment, U.S.P. The minimum concentration was six per cent in polyethylene

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glycol ointment, U.S.P. XIV. In further tests, the extract in the vanishing cream base showed a slight separation after a short time. The ointment prepared with six per cent of the extract in vanishing cream was stable and was the minimum concentration which gave activity.

A significant part of the study was a comparison of the compounds in various ointment bases which showed that polyethylene glycol ointment was the most effective base for the following compounds: 1) 15 per cent salicylic acid, 2) five per cent salicylanilide, 3) five per cent undecylenic acid, 4) eight per cent copper 3-phenylsalicylic acid, 5) five per cent 3-phenylsalicylic acid, 6) five per cent undecylenic acid with 20 per cent zinc undecylenate, 7) 10 per cent copper undecylenate.

Zinc Oxide in Cosmetics

Zinc oxide, says E. A. Fishwick (*Chem. Prod.* 17:8, 1954) enters into the composition of many cosmetics and toilet preparations. It is a major component of face powders and it is the important ingredient in the manufacture of zinc ointment. It also enters into the manufacture of medical adhesive plasters, certain types of face creams and powders, nail polishes, lip salves, rouge sticks, sunburn lotion, theatrical dry base, wet white or *blanche de perle*, various toilet powders and nursery powders.

In discussing the role of zinc oxide in face powders, Fishwick notes that there are certain qualities to all such products. They must possess covering power, slip, adhesiveness, and absorbency. The variation in covering power determine whether the powder is to be classed as heavy, medium or light. In formulating face powders, satisfactory covering power is probably first in importance. Face powder is called upon for a certain degree of camouflage. High covering power is not the criterion, it is how well the powder blends in with the surroundings, rather than how well it covers. Too much covering is worse than too little because of the unnatural effect which it creates.

The measurement of covering power has been a controversial subject for a long time. By varying the test conditions, the pigment concentration or the method of measurement, one can obtain widely different values for the relative covering power of pigments.

In order to compare the covering power of several face powder ingredients, calculations have been made based upon the refractive indices of the pigments and various media in which they may be used for cosmetics. These data are summarized in the table given below. Here it can be seen that in each medium the covering power of zinc oxide has been designated arbitrarily as 100. Actually the values decrease progressively from 100 to 37 to 21 as zinc oxide is placed in air, water and petrolatum respectively, and the values for the other pigments decrease proportionally. Titanium dioxide has greater covering power per pound than zinc oxide and the later is superior to chalk and talc. On the basis of cost per unit of covering power, however, zinc oxide is in a more favorable position.

Calculated Covering Power of Pigment

Pigment	Refractive Index	Relative Covering Power In air ($n = 1.00$)	In water ($n = 1.33$)	In petrolatum ($n = 1.475$)
Titanium dioxide	2.52	166	232	292
Zinc oxide	2.008	100	100	100
Chalk	1.658	55	29	15
Talc	1.589	46	19	6

Fishwick points out that a second desired function of a face powder is to eliminate the skin shininess caused by excessive oily secretion in certain facial areas. The prime requirements of a material for this purpose is a high absorbtive capacity. Zinc oxide of the desired particle size for optimum covering power, will retain less liquid than some materials specially prepared for this purpose, but its oil absorption capacity is in the range of other face powder constituents.

The use of zinc oxide in face powder formulation is indicated in the following French recipes:

	Light Type	Heavy Type
Rice starch	350	250
Zinc oxide	200	250
Colloidal kaolin	100	350
Talc	250	—
Strontium carbonate	100	100
Magnesium stearate	—	50
Perfume	q.s.	q.s.
Color	q.s.	q.s.

It is pointed out that zinc oxide may be of value in face powders because of its protective filtering action in absorbing ultra-violet from sunlight. Zinc oxide cuts off the ultra-violet more sharply than any other white pigment used in face powders. Since ultra-violet light is responsible for sunburn, then its prevention is only possible if a large percentage of these rays are not allowed to come in contact with the skin. Hence, it will be appreciated that zinc oxide should of necessity be a constituent of these preparations. A typical formula is:

Quinine sulfate	30 parts
Zinc oxide	70 "
Magnesium stearate	100 "
Osmo kaolin	200 "
Talc	600 "

Zinc oxide is also a useful component of talcum powders. This, says Fishwick, is a toilet article with a very wide sale, especially in warmer countries, and is intended to allay any irritation of the skin, and at the same time to act as an efficient lubricant of the skin. A typical formula contains:

Talc	850 parts
Cornstarch	70 "
Boric	60 "
Zinc oxide	10 "
Perfume	10 "

Following a consideration of the uses of zinc oxide in theatrical requisites, Fishwick cites the use of this material in powder sticks. These are used for the more efficient covering of skin blemishes and are not unlike grease paints, except that the pigment is lower, when a less artificial complexion results. They should be just sufficiently stiff to resist hot climates, and must of course be smooth in application. Any color may be prepared with the pigments usually employed in face powders. The following is a good formula:

White petroleum jelly	700 parts
Ozokerite	70 "
Cetyl alcohol	30 "
Zinc oxide	150 "
Titanium dioxide	40 "
Usual perfume compound	5 "
Pigments	5 "

Ophthalmic Ointments

According to A. Stenbeck-Gjertz and I. Ostholm (*Svenk. Farm. Tidskr.* 57:501, 1953 through *Chem. Abstr.* 48:955, 1954) the best vehicle for an ophthalmic ointment is one containing 80 per cent petrolatum and 20 per cent liquid petrolatum. If an emulsion is desired, up to five per cent of hexadecyl alcohol or 0.5 per cent of glyceryl monooleate can be used as an emulsifier. They found that all other emulsifiers caused eye irritation; polyethylene glycols causing a strong irritation.

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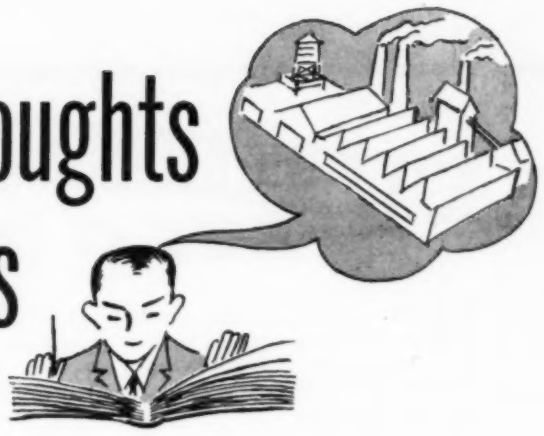
Patent Thoughts and Trends



*by Thomas Cifelli, Jr.**

PATENT ATTORNEY

For the benefit of those who prefer not to have to read through an entire article before learning that it is of no interest to them, a brief summary of the contents of this month's article will be given here. The first part of the article will be a review of some litigation of current interest to the drug and cosmetic fields. We next will consider in some detail recent patents dealing with the use of cheese as a carrier for food flavors, stabilizers for alkyl phenols to improve the resistance of these compounds against deterioration in color and odor and new amebicidal compounds. Then, some holdings in trademark cases will be noted, and, finally, a list of recent patents of perhaps more than passing interest will complete this article.

Patent Litigation

Two cases of wide interest to the cosmetic industry still are traveling their respective courses through the lower Federal Courts. Reference is obviously being made to the so-called "pressurized cream" patent and the so-called "cold wave" patent. The former, U. S. 2655480, it will be remembered, covers pressurized compositions in suitable containers for shaving, shampooing, etc., and is the subject of a suit now in the Federal Court in Baltimore, between Carter Products Inc., Joseph G. Spitzer and Marvin Small, against Colgate, Noxzema, Stalfort Pressure-Pak, J. C. Stalfort & Son and Reed Drug and Chemical Company. This case is in its very early stages and the indications are that it will be a hard-fought battle to the end. Consequently, no decision in the near future appears to be in the picture.

The so-called "cold wave" patent of Dr. McDonough, U. S. 2557710, which broadly covers permanent waving compositions containing mercaptans, still awaits a decision by Judge Kaufman. It will be recalled that Special Master Rifkind recently filed a very voluminous report unfavorable to the validity of the patent. It is believed that a decision by Judge Kaufman will be rendered before very many more months go by.

Until the decisions in these cases are handed down, it is believed reasonable to state that a number of individual business decisions in the industry will be held in abeyance.

Attention of the readers here is being called to two other suits involving patents in the drugs field. One of these suits involves U. S. patent 2471394 of R. Gubner, dealing with salicylate and succinate therapeutic preparations. The Federal Court for the southern district of New York held the claims of the patent valid in a case involving Dolcin Corporation vs. Hollings-Smith Co., Inc.

This patent is based on the idea of adding at least one non-toxic salt of succinic acid or the free acid itself to compositions containing salicylates such as acetylsalicylic acid. According to the patent, the use of salicylates in the treatment of acute rheumatic fever and rheumatic arthritis requires such dosage and frequency of administration that considerable interference with the essential normal physiological functions, as by giving rise to such toxic effects as inhibiting the normal activity of tissue respiratory enzymes functioning, for example, in the liver or other tissues, provoking nausea, vomiting and other toxic manifestations, and, in some cases, even causing death, results.

Gubner suggests using certain succinic acid substances such as calcium succinate in order to overcome these toxic effects.

The following example, taken from the patent, gives some details concerning the composition and dosage:

> 76 parts of calcium succinate powder are intimately mixed with 100 parts of acetylsalicylic acid U. S. P. powder and then granulated and thereafter incorporated with a suitable tableting binder and tabulated in known manner into tablets containing 2.8 grains of calcium succinate and 3.7 grains of aspirin each. This composition administered at a dosage regimen of 8 to 15 tablets daily for two months or more shows none of the usual toxic manifestations of aspirin when attempted to be administered along in the same amounts over the same regimen.

The second suit involving a drug patent was filed in the Philadelphia Federal Court last October and involves U. S. patent 2,437,518 issued to two Swedish inventors and owned by Aktiebolaget Pharmacia. This patent may be said to be the basic U. S. patent both as to process and product dealing with the use of depolymerized dextran as an extender for blood plasma. The suit in question was brought by Pharmacia Labs. against R. K. Laros Co.

It is not a pleasant subject but in this day and age any realistic defense against atomic warfare must necessarily take into account the probability that a large number of civilians will be injured within a short period of time. It is generally agreed that whole blood and blood plasma, while preferable, will not be adequate to meet the demands. Consequently, materials other than those from human blood sources have to be

*Newark, New Jersey

GLUCURONIC ACID *has a history*

BACK in 1875, Glucuronic Acid was first reported in the technical literature. It has since been accepted as one of Nature's important chemicals. Glucuronic Acid is a constituent of nearly all fibrous and connective tissue in animals and humans. It is also found in conjugated forms in normal blood and urine.

Now in 1953, Glucuronic Acid is manufactured synthetically in commercial quantities. Three convenient forms are available—crystalline Glucuronolactone, Potassium Glucuronate, and Sodium Glucuronate..

Send today for samples and our technical literature describing Glucuronic Acid Lactone and its salts.

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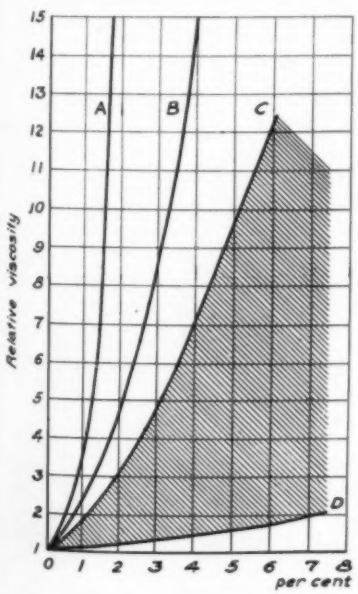
found in order to help in such situations. Polyvinylpyrrolidone or PVP and dextran appear to give the best promise. PVP was employed by the Germans during World War II as a substitute for blood plasma in cases of shock and extreme loss of blood. Dextran has made rapid strides since World War II and as far as is publicly known at the moment it is a toss-up as to which of these two products will come out on top. For that matter, it is always possible that some other superior product will be developed.

Be that as it may, Swedish interests have succeeded in obtaining basic U. S. patent protection, in the form of U. S. 2,437,518.

It will be appreciated that a suitable blood plasma extender has to meet many requirements such as, for example, suitable viscosity, non-toxicity, correct molecular size, etc. Dextran being a natural product and one of very high molecular weight, the problem was to break it down by hydrolytic methods so as to fall into the desired molecular weight and viscosity ranges, among others. In this connection, the following graph shows the relationship between the viscosities in concentrations of unhydrolyzed dextran solutions as compared with depolymerized dextran solutions.



Curve A represents the viscosity-concentration curve of unhydrolyzed dextran. Curve B indicates the upper limits for the viscosities of therapeutically useful solutions of hydrolyzed dextran for the concentrations indicated. Curve C indicates the upper viscosity limits for the preferred preparations of the patent used for intravenous infusions, while Curve D represents the lower viscosity limits for these preparations. The shaded areas between Curve C and D are therefore said to represent the preferred conditions of viscosity and concentration for the hydrolyzed dextran preparations.

Cheese Carrier for Food Flavors

Leave it to someone from the dairy state of Wisconsin to find an unusual use for cheese products. Fortney H. Stark, of Wauwatosa, Wisconsin, recently obtained U. S. patent 2,670,293 in connection with his idea for using cheese as a carrier for food flavoring substances in order to enhance and enrich the flavor without making its own flavor apparent in the compound.

Mr. Stark claims that cheese, and preferably a sharp, aged, hard type cheese, is capable of imparting smooth buttery textures and richness to flavoring materials for which the cheese is used as a carrier, the original sharp flavor of the cheese itself being wholly submerged in the mixture. This result is obtained whether or not the flavor ingredient is chocolate, or such diverse flavoring materials as citrus fruit flavors and peanuts.

Stabilizers for Alkyl Phenols

Two Shell Development inventors point out that alkyl phenols, particularly polyalkyl phenols such as 2,4,6-trialkyl phenols, are employed as oxidation inhibitors in materials where it is important that there shall be no change in the color or odor of the resulting composition with age. However, deterioration does set in and it is necessary to counteract this deterioration. For their discovery that the situation could be greatly improved with an organic polybasic carboxylic acid or salt, they obtained U. S. patent 2,672,485. The inventors claim that as a result of their treatment, it is possible to provide alkyl phenol compounds which would otherwise discolor and acquire an unpleasant ador after a short interval, but which are now capable of being stored for many months without exhibiting any appreciable change in color or odor.

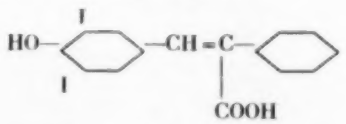
Examples of typical stabilizers include sebacic acid, adipic acid, oxalic acid, citric acid, tartaric acid, etc. Amounts of stabilizers from 0.01 per cent to about one per cent by weight of the alkyl phenol are recommended.

Amebicides

New amebicides and bactericides form the subject of U. S. patent 2,671,802 issued to Drs. Papa and Schwenk, of Schering International Research Institute.

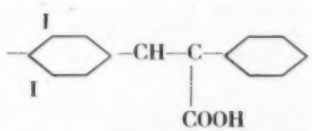
The reason why this patent has been singled out for some attention here is not because it deals with amebicides (frankly, the writer does not know what this term means) but because it is believed to point up two interesting situations.

The novel compounds are called alpha - substituted, hydroxy halogen - substituted cinnamic acids. An example of one such compound is alpha-(phenyl)-3,5 - diiodo - 4 - hydroxycinnamic acid, whose formula is as follows:



It will be noted that this is a derivative of cinnamic acid, which plays a rather important part in the field of olfactory materials or perfumes. In other words, it is another illustration of how you can take a material which is useful in one field and modify its chemical structure so as to obtain a product useful for an entirely different purpose.

A second point of interest is the fact that the specific compound mentioned above is very similar to the compound which is the subject of a claim in U. S. patent 2,345,384, which was successfully litigated in 1946 by Schering. The compound in that case can be represented as follows:



In other words, the only difference is that the compound which is protected by U. S. 2,671,802 has a double bond whereas the U. S. 2,345,384 compound is saturated. Incidentally, it will be recalled that the U. S. 2,345,384 compound was found to be an X-ray contrast material, specifically in the art of cholecystography, that is to say, a compound which after oral administration so acts upon the gall bladder without undue distressing effect that sufficiently revealing X-ray pictures of it can be taken.

In other words, this patent shows

(*Continued on page 596*)

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(Continued from page 559)

Diabetic Care in Pictures, (*Simplified Statements with Illustrations Prepared for the Use of the Patient*), *by Helen Rosenthal, B.S., and Joseph Rosenthal, M.D., Tufts College Medical School, Second Ed., 154 pp., 128 Original Illustrations, J. B. Lippincott Co., Phila., (1953), Cloth,* **$3.**

The successful treatment of diabetes depends for the most part upon complete co-operation between the patient and the physician. Such cooperation can be achieved only when the patient is equipped with sufficient knowledge of the disease and its management. The first edition of this book was written to make this information readily available. Its wide acceptance by patients and by professional workers in the fields of medicine and public health has proved its value and has prompted the revision of the material to keep it abreast of the latest concepts in the control of diabetes.

Practical Mycology, (*Manual for Identification of Fungi*), *by Sigurd Funder, Dr. Philos., 146 pp., Illus., Broggers Boktr. Forlag, Oslo, Norway,* **$5.50**

This book is designed to serve as an introduction to mycology for beginners and as an aid for those who without any special botanical knowledge are interested in identifying the most common fungi they meet with in the course of their work, e.g., bacteriologists, physicians, veterinary surgeons, biochemists, pharmacists, workers in industrial fermentation, the food industry, agriculture, etc. It is the purpose of the book to furnish the criteria whereon a determination is based, and the material which forms the basis for a systematic classification of the fungi. A series of drawings is presented in order to facilitate a rapid identification of the most frequently occurring fungi and the chief pathogenic forms which cause disease in man, animals, and plants.

Guide To the Classification and Identification of the Actinomycetes and Their Antibiotics, *by Selman A. Waksman, Professor of Microbiology, Rutgers University, and Hubert A. Lechevalier, Assistant Professor of Microbiology, Rutgers University, 246 pp., The Williams & Wilkins Co., Baltimore, (1953), Cloth,* **$5.**

The rapid progress made during the last few years in the screening of actinomycetes, especially of species belonging to the genus Streptomyces, for their ability to produce antibiotics, the use of many of these antibiotics for chemotherapeutic purposes, and the addition of numerous descriptions of new species of actinomycetes necessitate a more detailed presentation of the systematic position and identification of these organisms and of the antibiotics produced by them. In describing these new organisms, many investigators have been unable to identify their newly isolated cultures with those described in the last edition of Bergey's Manual, with the result that they preferred to give their cultures new names, often without regard to the established types. These new descriptions are found in various journals and even in patents. This guide has been prepared for the primary purpose of making this information available to workers in this field.

Detergency Evaluation and Testing, *by Jay C. Harris, Monsanto Chemical Company, 210 pp., Interscience Publishers, Inc., New York, (1954), Cloth,* **$3.75.**

The methods described have been found useful in years of experimental work and have generally been successful in weeding the potentially useful agents from those unlikely to be of value. This work is divided into the following main sections: I. Introduction. II. Screening Tests. III. Cotton Washing. IV. Cotton Wash Test Methods. V. Wool Washing. VI. Washing Procedures for Other Fibers. VII. Hard Surface Cleaning. VIII. Radioisotopic Tracer Method. VIII. Radioisotopic Tracer Method (cont.). IX. Miscellaneous Tests. Index.

The Shocking History of Advertising, *by E. S. Turner, E. P. Dutton & Co., Inc., New York, (1953), 351 pp., Illus., Cloth,* **$4.50.**

From the early advertisements of bullbaiting and curing of the pox, the author takes us through the fascinating age of the Coffee House journals with their advertisements of everything from houses of assignation to pretty slaves, lottery tickets and the latest best seller, "Harris's List of Covent Garden Ladies: or Man of Pleasures' Kalendar." With the 19th century the spotlight shifts to America and the rise of modern methods —P. T. Barnum, the war between Hearst and Bennett over the house of assignation advertisements, the rise of the soap manufacturers, and then the beginning of the modern era-Eastman with his $5.00 camera—and advertising that embraced all forms and media from skywriting to television. The authors purpose is not to besmirch this necessary adjunct to our modern economy but to show the social customs and origins from the 17th century to the present which are responsible for the good in advertising as well as the ludicrous, the sound as well as the wildly extravagant.

Physiological Cardiology, *by Arthur Ruskin, M.D., F.A.C.P., Associate Professor of Internal Medicine, University of Texas, 370 pp., (1953), Charles C. Thomas, Publisher, Springfield, Ill., Cloth,* **$8.**

Bridging the gap between experimental physiology and clinical medicine, this book includes the pharmacology, biochemistry, biophysics and semeiology of cardiovascular disease. The functional manifestations of heart disease are covered in a separate chapter. The chapters lead logically from the arrhythmias, conduction defects, and heart failure common to all forms of cardiovascular disease to the different types of heart disease. Subdivisions of single chapters are developed stepwise in subject matter to provide a historically sound account of the cardiac illness in question. Indications and contraindications of various therapeutic measures are thoroughly reviewed in terms of their physiological effects.

Accepted Dental Remedies 1954, (*Including a list of accepted products together with other information compiled to promote rational therapeutics in dentistry*) *19th Ed. 207 pp., American Dental Association, Council on Dental Therapeutics, Chicago, Paper cover.* **$2.**

Accepted Dental Remedies is published annually under the immediate supervision of the Council on Dental Therapeutics of the American Dental Association. This book is designed to be both a listing of commercial products which are currently accepted (classified in Group A) by the Council and also a description of nearly all of the official and non-official therapeutic items which are of demonstrated usefulness in dental practice. The descriptions of accepted products are based in part on investigations made by or in cooperation with the Council, but largely on evidence or information obtained from published scientific reports or supplied by the manufacturer or his agent. This edition conforms to the changes incorporated in the fourteenth revision of the United States Pharmacopoeia and the ninth edition of the National Formulary.

(Continued on page 599)

Perfumer's Shelf

Microdetermination of Ethereal Oils

In their report of a microprocess for the evaluation of genuine ethereal oils in individual plant oil glands, R. Fischer and H. Resch (*Naturwissenschaften* 39: 404, 1952 through *Chem. Abstr.* 47: 9560, 1953) note that the microdetermination of the critical mixing temperature allows analysis of very small amounts of binary liquid mixtures. In their procedure to determine the principal constituent in plant oils, the plant organ was cut to permit removal of the oil by a 0.1 to 0.4 mm. capillary in which one to two mm. of oil was obtained. Pure glycol was then sucked up following the oil, and the critical mixing temperature was determined on the microscope heating table. The composition of the oil was determined by means of proper standard curves. In the oil from various forms of dried *Fructus carvi*, the carvon content was 17.0 to 63.5 per cent. In oil of *F. foeniculi* the anethole content was 31.0 to 66.0 per cent, while in *F. citri* the citral content was 15.0 to 30.0 per cent. The accuracy of this method is said to be 0.3 to 1.0 per cent.

Peppermint Oils

It is pointed out in the *Perfumery and Essential Oil Record* (44:337, 1953) that with the possible exception of the citrus oils, peppermint oil is probably used more than any other essential oil for flavoring purposes. Several types are known depending on the country of origin. The English or Mitcham type is very much valued for its fine bouquet and aroma. By the transplantation of the Mitcham strain into Italy and Bulgaria, oils having many of the characteristic properties of the English oil are obtained.

When the figures of production are studied it is seen that those of the American type far exceed the others. All of these types are of course derived from *Mentha piperita*. Another variety of Mentha, *Mentha arvensis*, is cultivated in Japan and China and during the last few years has also been successfully grown in Brazil. This yields an oil of a very high menthol content. After a portion of the menthol has been removed the resulting oil is put on the market as dementholized peppermint oil, or simply as Japanese (or Chinese) peppermint oil. The characteristics of this oil are similar to that derived from *Mentha piperita* and by suitable fractionation may give a product which can replace the piperita type in cheaper price goods, although of course lacking the fine aroma and bouquet of the piperita oil. It is stressed that the Japanese, Chinese and the Brazilian oil are derived from a different botanical species and yield an oil of very different chemical and physical characters until it has been dementholized. In the United States the word peppermint is restricted to the piperita type and the other oil is designated mint oil or corn mint oil. Several testa have been devised to distinguish the two varieties and to prove the presence of one kind in admixture with the other.

Bellary Leaf Oil

M. R. G. Sharma, C. Varadhan and S. G. Sastry (*J. Sci. & Ind. Research* 12B:243, 1953) have found that that the bellary leaf oil derived from *Litsea zeylanica* by distillation has the following constants:

Specific gravity	**0.808**
Optical rotation	**+1°30′**
Index of refraction	**1.4900**
Ester value	**24.6**
Ester value, after acetylation	**71.6**
Acid number	**0.4**
Saponification number	**25.0**

The terpenes isolated from the oil and identified by their physical constants are: ocimene 35 per cent; alpha-terpinene 20 per cent, dipentene five per cent, para-cymene five per cent, and the sesquiterpene aromadendrene two per cent. The alcohols (comprising 25 per cent), in the oil are hexyl alcohol, heptyl alcohol, and methylheptenol. Caprylic acid esters are also present. According to Sharma and his colleagues, the tendency of the oil to resinify is probably due to the presence of ocimene.

Assay of Ascaridole in Castor Oil

In a note in *The Journal of Pharmacy and Pharmacology* (6:60, 1954) D. C. Garratt and R. F. Phipers state that oil of chenopodium diluted with 19 parts of castor oil, with the official title of solution of chenopodium is used as a veterinary anthelmintic and owes its therapeutic activity to the ascaridole present. Apart from the desirability of estimating the active ingredient rather than an added constituent of a galenical, the importance of the determination of ascaridole in solution of chenopodium lies in the need to standardize the ascaridole content within narrow limits. This close assessment is necessary because it has been asserted that the therapeutic dose is close to the toxic dose for certain animals. Since the British Pharmacopoeia assay of ascaridole in chenopodium oil is an empirical method requiring strict adherence to detail, the determination is inapplicable with the considerable modification of conditions necessitated by the presence of the castor oil and the low concentration of ascaridole.

To improve the accuracy of the assay Garratt and Phipers developed the following method which gives satisfactory results:

To 50 Gm., accurately weighed, of five per cent solution of oil of chenopodium in castor oil placed in a 500-ml. Claisen flask, add 50 ml. of ethylene glycol. Distil at a pressure of about 0.5 mm. mercury (using glass wool and porous pot to prevent bumping) until the contents of the distillation flask are clear. Transfer the distillate to a separating funnel and dilute with 100 ml. of water. Wash the condenser and receiver with 25 ml. of anesthetic ether and use it to extract the distillate. Extract the

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TOP NOTES by Fritzsche

A THOUGHT for the Month:

"He is not only idle who does nothing, but he is idle who might be better employed." —SOCRATES

FLOWER of the Month

March — Jonquil
or Daffodil
April — Sweet Pea
or Daisy

MAYBE YOU KNOW HIM . . .

CANADIAN-born NORMAN JONES came to Fritzsche Brothers in 1948 with an exceptional background in the retail selling of pharmaceuticals, perfumes and cosmetics. He graduated in 1931 from Toronto's Ontario College of Pharmacy. Service with T. Eaton & Company contributed greatly to his knowledge of the drug field and his subsequent affiliation with Elizabeth Arden of Canada as sales manager aided similarly in his understanding of the problems inherent in the selling of soaps and the whole wide range of toiletries and cosmetics. With practical experience as his guide, he has been able to offer incalculable assistance to the drug and cosmetic accounts he has served in representing the Fritzsche line in his Metropolitan New York territory. Norman is a sensitive man keenly responsive to the interests and personal preferences of his customers. Some of this sensitivity has undoubtedly been transmitted to and is reflected—musically—in his daughter, Marion, who, at 14, is a pianist of great promise and the possessor of one of Nature's rarer gifts—a sense of absolute musical pitch. She is the gem of which he and Mrs. Jones are most proud. Norm is too contented a family man to have many interests outside his own home, but he does indulge occasional fishing and, now and then, a relaxing round of golf. He's a nice fellow to know and we're glad he represents us.

RECOMMENDATION of the Month

Fresh Lilac
(No. V-722)

Here is a fragrance that is both timely and timeless . . . a really beautiful rendition of fresh flowering lilac for use in spring colognes, face lotions, toilet waters and soaps. Though you seek far and wide, we doubt that you will find a cleaner, fresher, more delightful lilac at $8.50 per pound than this creation of our perfume laboratories. Few florals can match the appeal and consistent popularity of lilac. Sample our FRESH LILAC and you'll understand why.

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Even as you read these lines, new business opportunities are being created for you by the makers of low pressure aerosols. Continuing improvements in the design, efficiency and attractiveness of these dispensing units are positive factors in assuring an ever growing demand for the packaging of toiletry products in this convenient, easy-to-use form. As an aid to those who are now working on fragrance products suitable for pressure dispersion, we have recently added a number of attractive new odors to our line which have characteristics especially desirable for aerosols. All are long-lasting and stable; none will cause clogging; all are completely compatible with the propellents now in use. They have been fully tested and are moderately priced. If you're thinking of pressure atomized fragrances, be sure to check the merits of these very special numbers before making your final odor selection. Write us for details, samples and prices.

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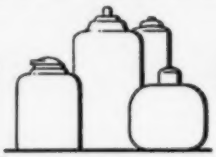
Good Scents

FOR PERFUMERS



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APPLE BLOSSOM L-555	*$7.00 lb.*
DAPHNE H-507	*$8.00 lb.*
ORIENTAL BOUQUET V-490	*$7.00 lb.*
GARDENIA V-635	*$8.00 lb.*

You may obtain ½ oz. working samples of ALL SIX of these compositions by filling in and mailing us the coupon below along with $1.00 check or money order to cover packing and handling.

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SHE TAKES HER MEDICINES JUST AS WILLINGLY . . . .

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aqueous solution further with 3 successive quantities, each of 25 ml., of ether and shake the mixed ethereal extracts with 40 ml. of 90 per cent acetic acid. Remove the ether by heating in a water bath maintained at 60° to 70° C. or by passing a current of air over the solution. Adjust the remaining solution to 50 ml. with 90 per cent acetic acid and place this solution in a 10 ml. burette which possesses an outlet capable of delivering 5 ml. in not more than five seconds. There after the method follows that described in the B.P.

It is remarked that the advantage of the proposed method rests particularly in the fact that the ascaridole is being determined by the same method as directed for oil of chenopodium.

Ultra-Violet Radiation for Odor Control

It is pointed out by W. Summer (*Manuf. Chem.* 24:105, 1953) that the persistency with which certain odors "hang about" in contrast to others which dissipate quickly is a consequence, first of all, of the size of the molecules (high vapor density) and, secondly, of the heat content of the air. Odorous molecules get lodged in the pores of wallpaper, fabric, timber, and the like, from which it is extremely difficult to dislodge them.

In considering the various methods of abating offensive odors, Summer remarks that a number of attempts at properly classifying these methods have been tried in the past and have met with varying degrees of acceptance. Principally, there are only three methods that produce more or less satisfactory results:

Extraction: in the hope that the offensive odor will finally be exhausted with the rest of the air; watch out for persistency.

Masking: another, stronger, more persistent, yet more pleasing odor is introduced to mask the nuisance.

Destruction: the elegant method and the only one that should be used. According to the bias of the consulting engineer, he will advise a chemical or a physical method.

The chemical method is represented by chlorination which actually is a method of producing nascent oxygen by a chemical and indirect method. The limitations are that chlorination, as a deodorizing method, is applicable only to the treatment of polluted water and that the active agent (chlorine) must be replaced continuously and is a corrosive.

None of the disadvantages inherent in other methods is found with the ultra-violet deodorization of air. This is a physical method of producing nascent oxygen from the oxygen of the air, thus making it possible for the nascent oxygen to interact with any odors at the source. Ultra-violet radiation produces both nascent oxygen and ozone. Ozone is a very active oxidizing agent whose life is long compared with that of nascent oxygen which lasts about one microsecond. Both nascent oxygen and ozone are truly destructive agents in that they attack and change the structure of molecules so that they no longer stimulate human osmoceptors.

According to Summer the ozonization method is the only one having a lasting effect; requiring no raw material to work on other than the oxygen in the air. There are three ways of producing ozone in air: (1) a chemical reaction which is impracticable for all purposes; (2) the silent electric discharge method which, at its best, might be called a first approach to ozonization; (3) the ultra-violet irradiation method which is the method *par excellence* yielding unfailing results.

Ultra-violet air deodorization is applicable to almost any kind of air pollution. The units may be allowed to play directly on the source of odorous vapors or materials, or they are directed towards the contaminated atmosphere. Successful deodorization of large volumes of air and strongly concentrated vapors, as for instance in the by-products and casing departments of abattoirs or in waste matter processing departments, has been carried out and worked satisfactorily ever since. The equipment is relatively inexpensive to install and economical to run. Two techniques have been evolved so far and the necessary equipment developed: (1) the room unit for direct control at the source, or for general purposes; (2) the chamber unit for controlling offensive odors before discharge into the open air.

It is recognized that ozone has a slight smell of its own. Thus, if more ozone is produced than is used up in the process of oxidation. the surplus ozone will be perceived as an additional odor and this will give rise sometimes to the opinion being put forward that ozone is just another masking smell. However, if a balance is kept between ozone produced and ozone used no additional smell will be apparent.

Summer also points out that ultra-violet radiation will produce a tan due to an erythema appearing some four to eight hours after irradiation. Therefore, a direct incidence of ultra-violet radiation on the skin of work-people should be avoided, but care should also be taken that ultra-violet energy does not reflect from highly polished metal parts. A further disagreeable effect is an inflammation of the mucosa of the eyelids which ill result from ultra-violet irradiation. Conjunctivitis is easily avoided by either mounting the units with properly designed screens, or by wearing protective eye shields or goggles.

Oil of Guava Leaves

The essential oil from the leaves of the Bangalore variety of the guava tree, *Psidium guayava* has been examined by A. Bhati, S. C. Bhattacharyya and P. C. Guha (*Perf. & Essent. Oil Rec.* 44:274, 1953). The oil, obtained in a yield of 0.26 per cent, has the following constants:

Specific gravity	**0.9001**
Refractive index	**1.4882**
Optical rotation	**+5.5**
Acid value	**1.1**
Ester value	**12.3**

The oil was fractionated and five fractions were obtained, and their constants and composition were studied. Fraction I appears to be a mixture of *d*- and *dl*-limonene; fraction II seems to be *beta*-caryophyllene; fraction III is a bycyclic sesquiterpene giving cadalene on sulfur dehydrogenation; fraction IV is a tertiary cadinylic alcohol; and fraction V is also a tertiary cadinylic alcohol.

Oil of Piedmont Mentha

In a report on oil of mentha grown in Piedmont, A. Botta and M. M. Botta (*Rev. Ital. essenze, profumi, piante offic., olii vegetali, saponi* 35:287, 1953) present the average figures on certain components and characteristics of oils of mentha Italo-Mitcham of the 1951 and 1952 crops, as follows:

	1951	1952
Total menthol	45.86 per cent	44.21 per cent
Free menthol	41.14 per cent	40.74 per cent
Esters (as acetate)	4.75 per cent	4.40 per cent
Ether number	13.32	12.46
Specific gravity	0.9136	0.9130

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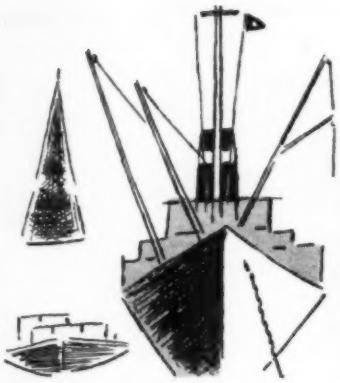
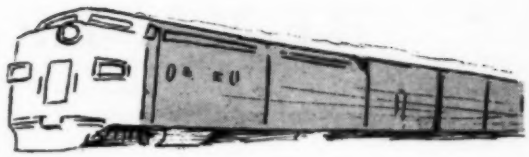


Abreast Of The Markets



Markets Steady, React Slowly to Approach of Spring Season; Guenther Discusses Lemon Oil

All phases of the market were on the routine side last month, with very few price changes having taken place in the botanicals, and a small number of noteworthy price movements in the essential oil and fine chemical fields. The absence of any large-scale developments in the citrus oil market was rather surprising, for this is the period when consumers prepare for the busy spring and summer months ahead; moreover, lemon, lime and orange oils showed no changes and seemed to be sufficiently stocked for all current needs.

As far as fine chemicals are concerned, there was a three-cent decline in alcohol and a $7 advance in the price of mercury. Menthol appeared to be holding firm, and the general belief was that it would probably work up to a higher level shortly because of the limited Brazilian production and high cost of Japanese material.

Sources in the industry considered the market in a healthy state at the present time, with the essential oils having risen in general to a more attractive level, and the botanicals showing more activity than in previous months.

Dr. Guenther on Lemon Oil

Dr. Ernest Guenther, vice-president and technical director of Fritzsche Brothers, visited Sicily on his recent European trip in order to study the latest developments in citrus oil production in that area. He reports that the production of lemon oil on this island is gradually increasing, although no definite remedy has been found to combat the dreaded *mal secco* disease which has inflicted so much damage on the old type of lemon trees in Sicily. The growers have learned how to stop a further spread of this malady, however, by resorting to tree surgery the moment any signs of *mal secco* appear in a grove.

Dr. Guenther also states that the growers are again planting the old type of lemon tree which produces a much better fruit and better oil than that derived from the so-called monachella tree. This latter tree had been introduced into the groves for some years because of its greater resistance to the disease.

Cocoa Butter Steady

Cocoa butter hovered around $1.06 a pound in March as consumers bought up small lots from time to time. Dealers indicated a reluctance on the part of purchasers to stock up too heavily on the item because of the wide variance in prices which occurred frequently.

Hormones Lower in Price

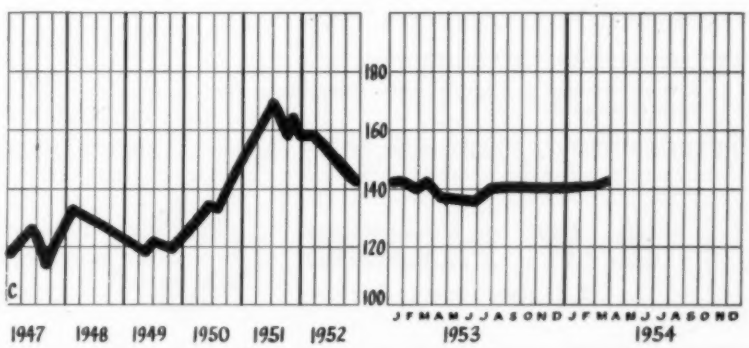
Synthetic hormones were reduced during the early part of March in some quarters. Progesterone was being quoted at 65 cents a gram, testosterone propionate, at 75 cents a gram, and pregnenolone acetate, at 55 cents a gram.

Menthol Shows Strength

Brazilian menthol continues to display very firm tendencies with prices extending from $5.10 to $5.20 a pound. The general concensus in the trade is that the price level will probably work higher as time goes on in view of the high ($12.50 to $13) prices now pre-

(Continued on page 574)

25 Cosmetic Raw Materials—Unweighted Price Index. 1926=100.



The cosmetic raw materials index advanced from 141.8 to 143.7. Balsam tolu was higher; alcohol and Japan wax were lower.

Prices quoted in this section were current on the first of this month.

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COSMETIC RAW MATERIAL HEADQUARTERS

Glycerine Active, Demand Continues Strong; Mercury Higher; Vanilla Beans Continue to Advance, Ethyl Alcohol 3c Lower

While there was no change in the glycerine price of 29 cents a pound, demand for the refined material was on the brisk side. Dealers reported that supplies were plentiful enough to handle all requirements comfortably. No change in the market price of this commodity is anticipated in the near future.

Mercury Up $7

Quicksilver advanced $7 a flask in early March to the level extending from $198 to $200. There were two major factors which were said to be the cause of this advance: the dock strike in New York which caused unlimited delay in shipments, and the belief that available supplies of metal from producers in Italy and Spain were being depleted because of barter deals with the U. S. Government for surplus American grain.

Vanilla Beans Still Climbing

The prices of vanilla beans continued to go up last month, in spite of a definite resistance on the part of consumers to the inflated replacement costs. Bourbon beans were priced from $10.25 to $10.75; Mexican cuts, from $9.50 to $10; Mexican whole beans, from $10 to $10.50; and Tahiti beans, at $10.

The high prices are the direct result of a shortage of the beans at the origin, and any letup in buying, which would be temporary at this time of the year, would have little effect on the market. As a matter of fact, the months just ahead, when ice cream consumption is at its peak, will probably create an increased demand which will cause another price jump in the market.

Agar Exceedingly Firm

Although the spot price of agar agar No. 1 remained between $3.50 and $4 last month, dealers report that the market is in a very unfavorable position. Because the carryover from last year's crop was extremely light, and because the new crop material will not be available until 1955, all indications pointed to climbing prices in the months ahead.

Alcohol Down Three Cents

The price of ethyl alcohol was reduced three cents a gallon last month in the first decline of 1954. There were two main factors behind this reduction: a smaller demand for ethyl alcohol at the present time, and the increasing production capacity of synthetic material which is cutting into the use of fermentation alcohol. In fact, some authorities state that there is enough synthetic alcohol being produced at the present time to handle all needs, without having to depend on the fermentation material at all.

The following data on the supply, production, withdrawal and stocks of ethyl, completely denatured and specially denatured alcohol was released by the Alcohol and Tobacco Tax division of the Bureau of Internal Revenue in March. The table compares the month of January, 1954, with that of January, 1953.

Production

	Gallons	
	1954	1953
†Ethyl	27,112,411	46,160,978
*Completely denatured	63,588	42,467
*Specially denatured	15,149,050	18,994,219
Withdrawals		
†Ethyl, tax paid	981,980	1,814,813
tax free	28,439,808	41,999,339
*Completely denatured	51,120	46,068
*Specially denatured	16,158,442	20,176,001
Stocks		
†Ethyl	51,402,886	84,263,088
*Completely denatured	24,049	33,369
*Specially denatured	5,397,182	7,050,549

*Wine gallons. †Proof gallons.

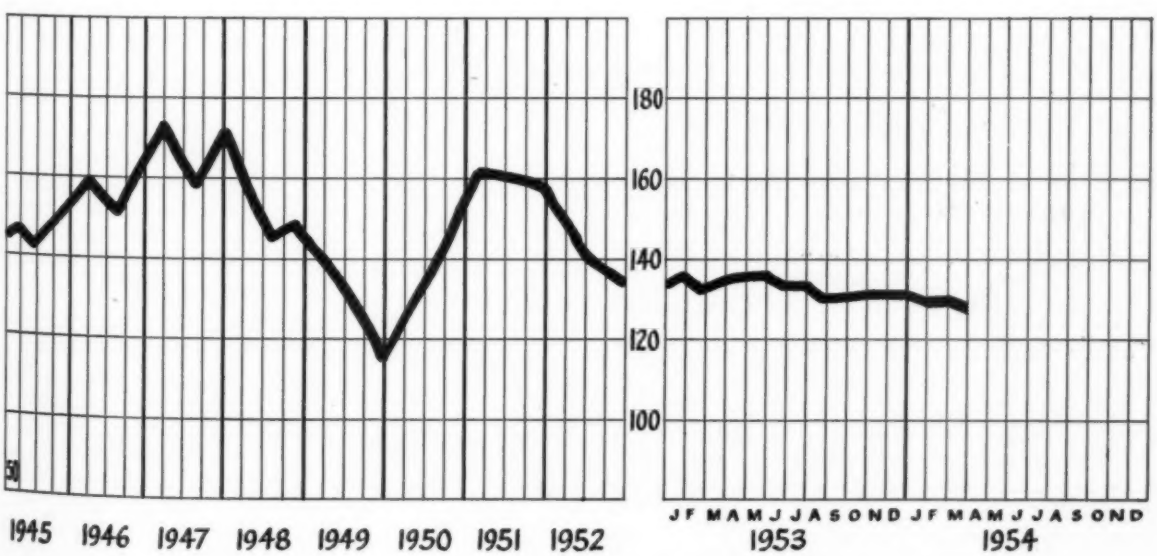
Buchu Leaves in Short Supply

The price of buchu leaves went up to 50 cents in some quarters last month, while other sources continued to quote the item at 45 cents. The quotations coming out of the origin have been advanced in recent weeks and will probably bring about higher figures in the spot market where at the present time there are very meagre stocks.

Japan Wax Higher

Japan wax is very limited in supply at the present time and pricewise has advanced to the range between 36 and

50 Raw Materials—Weighted Price Index. 1926=100.



The price index of fifty commodities for March went down from 128.2 to 127.3.

MARCH PRICE CHANGES

UP

Balsam Tolu 50c
Cedar Wood Oil 8c
Cumin Oil $1.50
Eugenol 25c
Ginger Oil $4.75
Lavender Spike Oil 5c
Lemon Grass Oil 15c
Mercury Metal $7
Pinus Pimulio Oil $1.85
Vanilla Beans,
Bourbon $1.25
Mexican, Cuts $1
Mexican, Whole $1.25
Tahiti $2.50
Wormseed Oil $1

DOWN

Alcohol, Denatured No. 1, Spec. 3c

40 cents a pound. Suppliers indicate that the difficulty stems from a poor crop yield at the origin.

Sarsaparilla Root Limited

While sarsaparilla root remained at 60 cents last month, the available supply in the spot market continued to dwindle. As a result, there was only a small turnover in business during that period.

Heliotropin Very Firm

A definite firmness has been developing in heliotropin owing to a sharp scarcity in the raw material. The price range of $3.50 to $4.25 is expected to hold, and may advance to higher levels in the coming weeks.

Menthol Shows Strength

(*Continued from page 571*)

vailing for Japanese menthol. In addition to this factor, it has been reported in the trade that Brazilian markets expect a smaller production of menthol this year. This will add to the firmness that has already developed.

Balsam Tolu Very Firm

Demand for balsam tolu was on the brisk side during March. This was coupled with a definite firmness, with the price advancing 50 cents to the level of $4.

Clove Oil Leveling Off

Following the precipitous decline of clove oil during the past six months, this item finally managed to hover around $4.25 and $5 a pound in March. A slight reversal in the market is looked for by some sources as a result of a floor price that has been established on the clove buds.

Bergamot Oil Steady

Bergamot Oil remained in the range between $11.25 and $14 and appeared to be settling down to a fairly stable condition during the latter part of March. Sources report that the new-crop material which is now ready for the market, is of very good quality. On the distribution side of the picture, the Italian source is shipping large quantities of the oil to many European countries at the present time, as well as to Russia.

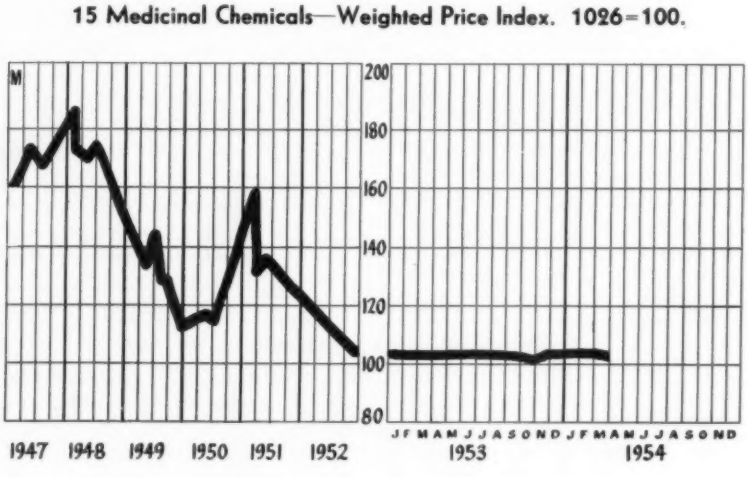
Anise Oil Still Short

There were no changes in the price of anise oil last month; however supplies were still very scanty. If anything, dealers expect the situation to become even more severe in the coming months. The oil was quoted at $2.75 a pound and extended up to $3.50.

Citronella Oil May Advance

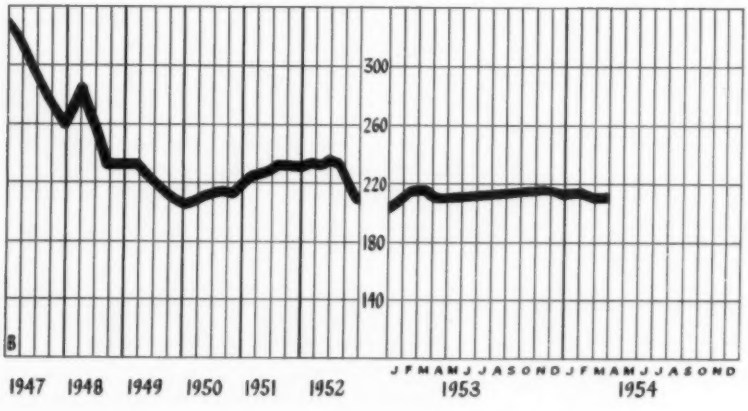
While there were no changes in the citronella oil prices for the month of March, it appeared that a definite firmness was developing. The Ceylon material has been selling in the range between 80 and 90 cents, and the Java, from 72 cents to $1. As in the bergamot oil, so in citronella, are the European countries becoming an important factor

15 Medicinal Chemicals—Weighted Price Index. 1926=100.



The medicinal chemicals index went down from 104.2 to 102.7. Mercury was higher; alcohol, lower.

15 Botanicals—Weighted Price Index. 1926=100.



The botanicals index went up slightly from 211.0 to 211.8. Balsam tolu was higher.

once again. This consuming area is beginning to buy such large amounts of citronella that the entire market is expected to become much firmer in the approaching spring and summer months.

Bois de Rose Steady

Bois de rose oil continued at $4.10 a pound and appeared to be a fairly good market position since the available stocks were more than enough to handle the current demand.

Petitgrain Oil Firmer

Although there have been no recent changes in the price of petitgrain oil, there are indications that the item will become much firmer in the next few weeks. Dealers report that very little replacement material has been received from South America, and any buying which takes place on spot will aggravate the situation that much more. The price range by the end of March extended from $2.60 to $3.35 a pound.

Spearmint Oil Steady

Spearmint oil continued to be quoted from $5.85 to $6.50 early this month, and sources in the trade were of the opinion that this range would prevail for some time, with a possibility of firmer prices later on.

Wormseed Oil Higher

Wormseed oil advanced to $6.25 last month and extended on up to $7.25 a pound. Two factors were held responsible for this advance—the firmer ideas exhibited by the holders in the country, and an increased interest shown in the oil by consumers during recent weeks. It appeared that this firmer trend would continue for some time.

Lemongrass Oil Higher

Lemongrass oil advanced to $1.60 a pound owing to the higher replacement costs emanating from India. Spokesmen indicate that the price level will probably remain at this new range inasmuch as the sources at the origin have showed no signs of wishing to reduce the price of the oil.

Orange Oil Uneventful

Contrary to previous years, demand for orange oil remained on the quiet side last month, at a time when there is usually a large inquiry for the material in anticipation of warmer weather. Nevertheless, orange oil prices remained unchanged, with American cold pressed oil being quoted from 90 cents to $1.75 and the American distilled, from 80 cents to $1.25.

Patchouli Oil Stronger

Although patchouli oil was still being sold at prices extending from $7.75 to $9.25 in March, the oil is expected to advance at any time. During this period, say the dealers, patchouli oil has been quoted on spot at figures well below the cost of replacement. When these higher-priced replacements are made therefore, and this new oil is subsequently sold, the revised market value will have to be higher in order to allow the dealers to maintain a profit.

Peppermint Oil Firmer

Although there were no changes on the spot market last month in peppermint oil, this material was showing a definite firmness among the producers. Dealers expected this firmer tone to be reflected on spot within a short period. The Natural oil was being quoted from $6 to $6.25, and the redistilled, from $6.50 to $6.75 a pound.

Geranium Oil Unchanged

Both the Bourbon and African varieties of geranium oil remained at $10 and $12, respectively, last month. Since buying interest on the spot market was quiet, dealers expect this item to continue on the inactive side during the next few weeks.

Sage Oil Steady

There were no changes in the status of sage oil during March, the Dalmatian oil having remained at $6.35 a pound. Since there were ample stocks to handle all the immediate needs, no important price shift is looked for.

Ginger Oil Much Higher

The price of ginger oil advanced by $4.75 a pound and by the end of March was being quoted from $15.50 to $17. The major cause for the price hike was said to be the greatly increased cost of the ginger root. Additional advances are looked for in the coming months.

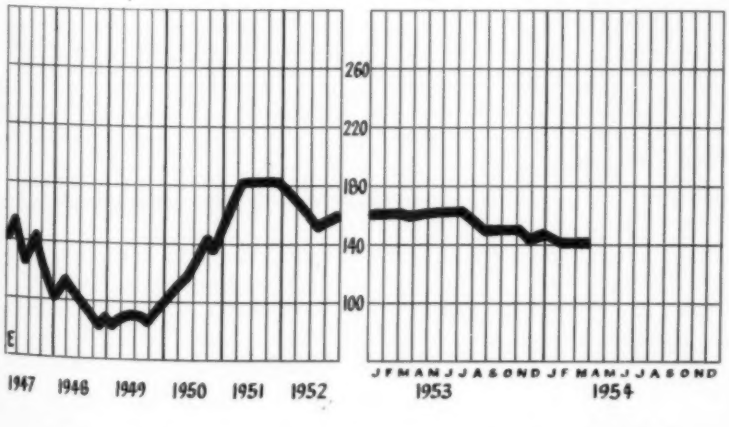
Bay Oil Firmness Expected

While there have been no changes as yet in bay oil, spokesmen are looking for a tighter market in the near future. Shipping prices on the oil from West Indian ports were higher last month, and these new levels are expected to be passed on to the spot market. The oil was being quoted between $1.75 and $2 during March.

Cedar Wood Oil Up 8c

Cedar wood oil has become quite firm in recent months, according to spokesmen, who state that distillation of the oil has been hampered greatly by poor weather conditions. It remains to be seen where the price will finally end by the time dealers have made sizable replacements with the more expensive oil.

15 Essential Oils—Weighted Price Index. 1926=100



The essential oils index remained at 140.9. There were no changes.

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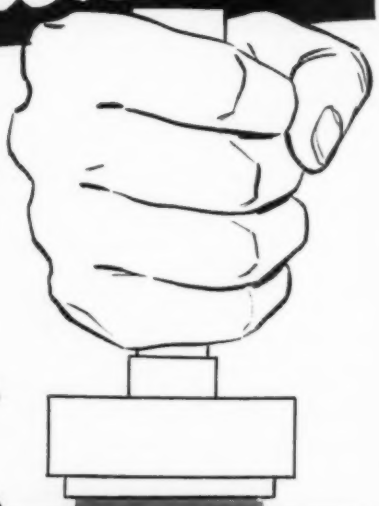

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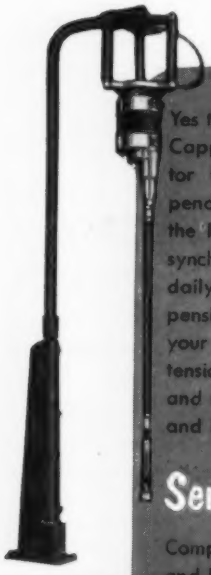

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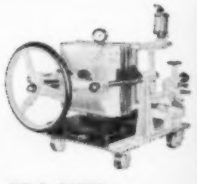

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THE SEARCH FOR ADRENAL HORMONES

(Continued from page 495)

plasma sodium of these animals was at the low level typical of insufficiency.

The lack, of more precise methods for assay of these factors caused work on the mineralo-corticoids present in the natural adrenal extracts to lag far behind the subsequent work on glucocorticoids. With the availability of radio-active isotopes, Grundy, Simpson and Tait, in 1952, set about to develop a microbioassay method by measuring the effect of hormones on the excretion of a tracer mixture of Na^{24} and K^{42}. They were able by this method to effectively quantitate the mineral activities of the various crystalline steroids and also to demonstrate the presence of a highly active mineralo-corticoid in beef adrenal extract. This compound was shown by paper chromatography to be different from any of the known α ketol steroids and also to be present in hog adrenal extract and in monkey and dog adrenal perfusate.

The highly active mineralo-corticoid was at first found to travel together with cortisone when the extract was chromatographed on paper. The substance was completely separated from cortisone, however, by running the fraction for much longer distances along the chromatogram. The active material thus localized was estimated by the authors to possess a mineral activity of the order of twenty times that of desoxycorticosterone on an equimolar basis. Because their compound formed a polyacetate which was inactive but could be reactivated by incubation with red blood cells these authors concluded that the molecule possessed two readily acetylable hydroxyl groups. An examination of all the properties shown by this compound caused the authors to conclude that it was different from any of the known biologically active steroids.

As a result of this important finding it became clear that a highly potent salt-active steroid different from desoxycorticosterone is produced by adrenal glands and that previous methods of investigation had failed to disclose this fact. The Selye theory that an excessive secretion of such a compound was responsible for the "diseases of adaptation" (rheumatoid arthritis, essential hypertension and a wide variety of human diseases) had until now been questioned on the grounds that desoxycorticosterone, the only known salt - active steroid, had not been found to be secreted in physiological amounts by mammalian adrenal glands. The necessity to re - examine these attitudes was now obvious.

If the physiology and chemistry of the naturally occurring, highly potent, mineralo-corticoid could be worked out, a new chapter in Endocrinology might open up. Not only could we explain some of the missing links in our present knowledge of adrenal hormone balance but we might uncover vast new therapeutic applications for this vital substance, paralleling the experience with cortisone. Indeed, if this hormone

(Continued on page 580)

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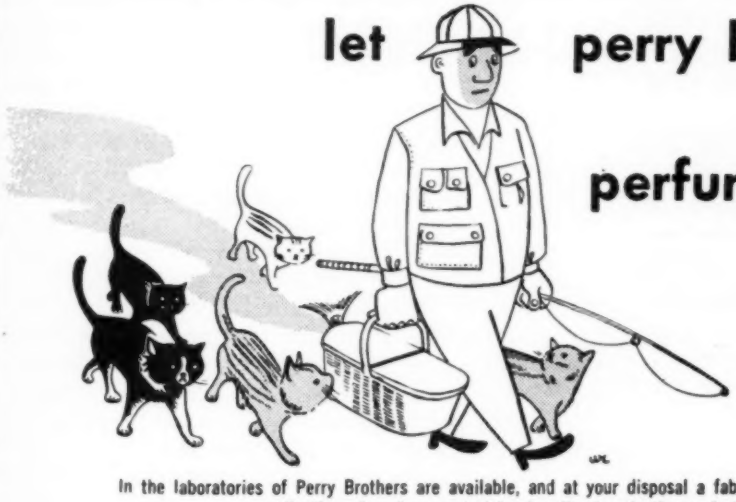

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(*Continued from page 578*)

holds the key to the riddle of homeostasis, our ability to manipulate body metabolism will be increased enormously and the use of the therapeutic tools that have been fashioned thus far will be greatly enhanced.

"Electrocortin"

In August of last year, Reichstein announced that in collaboration with Drs. Simpson and Tait, he and his co-workers had isolated 22 milligrams of a crystalline material from adrenal extract which possessed an activity of from 50 to 100 times that of DOC. Characterization of this compound which was named Electrocortin, awaits further study, but the following are some of the statements of Reichstein as quoted from the New York Times:

"The isolation of electrocortin, Dr. Reichstein believes, marks the extraction of the last important hormone from the life-essential gland, though some minor hormones may still be extracted, he said.

"The principal natural hormone of the stress type is hydrocortisone, which is '50 per cent more potent than cortisone.' The principal natural steady-state hormone is the newly isolated electrocortin. In addition, the adrenal cortex produces still a third hormone named corticosterone, which is intermediate in activity between the stress and the steady-state hormones.

"These three crystalized compounds represent what I think are the three most important natural hormones of the adrenal cortex. By their simultaneous application it will probably be possible to reproduce the normal function of the gland to a high degree of approximation. Their simultaneous and controlled release into the blood, perhaps in different relative proportions according to the amount of stress, may well represent the main function of the gland."

Further Work on Isolation and Characterization of "Electrocortin"

The work of the British group, (Grundy, Simpson and Tait) was confirmed in this country by the announcement of Farrell and Richards (during July, 1953) of the isolation of a potent sodium-retaining substance from adrenal venous blood of the dog. The rate of movement of this substance on the paper chromatogram, color reactions, etc., indicated that this substance was very similar to the compound of Grundy, Simpson and Tait.

While further findings by the Swiss and British groups have not as yet been published, the announcement of the isolation of Electrocortin seems to have caused a considerable acceleration in research on this subject in the United States.

In the October 5, 1953, issue of the Journal of the American Chemical Society, three communications dealing with Electrocortin were published. A report from the research laboratories of the Upjohn Company

described the isolation of a highly active survival-growth-electrolyte substance which appeared identical with the characteristically active component of the classical amorphous fraction. Research preparations which were about 20 per cent pure with respect to the mineralo-corticoid were found to be equal to DOC in the growth assay and 25 times as active in the sodium retention assay. Chromatographic and chemical properties reported for this compound are almost identical with those already published for Electrocortin. The compound was reported to form a polyacetate upon acetylation with no biologic activity but could be deacetylated to regenerate the free active compound. These properties were also described for a compound found in beef adrenal extract and announced in the same journal, in a communication from the Mayo Clinic, by Mattox, et al.

There seems little doubt that all of the groups mentioned here are working upon the same compound which can be referred to as "Electrocortin."

The Structure and Synthesis of Electrocortin

Simpson and Tait put forth the suggestion in May, 1953, that their compound might be desoxycorticosterone with one extra hydroxyl group in close proximity to the side chain. This requirement would be most easily fulfilled by a hydroxyl group in the 16 α position. While a hydroxyl group at 16 β and at 18 would also fulfill the requirement of closeness to the side chain, these compounds have never been found in nature, and in fact, the 18 position has thus far resisted all efforts at substitution, even synthetically. The properties listed for the electrocortin-like compounds described by the Upjohn and Mayo investigators strongly support the structure proposed by the English workers.

The third communication in the October 5th Journal reports an attempt by Hirschmann and Farrell to synthesize the 16-hydroxylated compound suggested by Simpson and Tait. A compound was prepared which is believed to be 16 hydroxy DOC with acetate groups at 21 and 16.

Enzymatic hydrolysis with cholinesterase from red cells yielded a product which migrated in a paper chromatogram at a rate very close to that of the highly potent sodium retaining factor of Farrell and Richards. The authors report that further characterization of the hydrolyzed product awaits the preparation of additional material. However, in an addendum, they state that assays of the hydrolyzed product failed to demonstrate the high salt retaining activity of Electrocortin.

In the writer's laboratory, the free 16α-hydroxy desoxycorticosterone-21-acetate, melting point 207° C., was obtained by a method different from that of Hirschmann. While the rate of migration on paper was similar to that reported for Electrocortin, the mineralocorticoid activity was disappointingly low.

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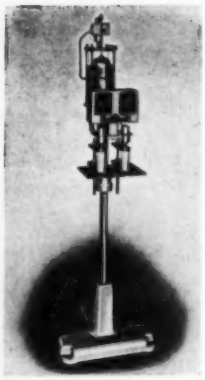

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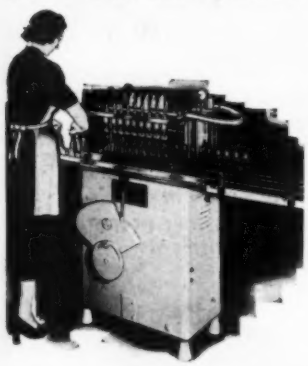

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Thus there is no conclusion possible at this time concerning the exact nature of Electrocortin. The known lability of Electrocortin makes it imperative to view both synthetic and biologic results with a cautious eye. It is almost certain that within the next few months these questions will be clarified, and it can be decided definitely whether or not Electrocortin is desoxycorticosterone with a 16 hydroxyl group. If it is not, then is it a slightly altered version of this molecule? As of the present moment, the end is not yet in sight.

STERILIZING AIR BY DIRECT HEATING

(Continued from page 507)

toward, rather than away from, the sources of contamination.

The sinks, lavatory and floor drains in the sealed area drained into a steam trap sterilizer in the basement where liquid refuse was held for 20 minutes at about 212° F before discharging into plant sewers. Removal of other solids refuse was accomplished in a disposal incinerator also located in the incinerator building and vented to the same stack as the air heater.

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CHELATION: KEY TO METAL ION CONTROL

(Continued from page 497)

decrease the body retention of the amount of a radioactive metal subsequently administered.[12] Thus an avenue has been opened for the control of the beneficial actions of the radiation of fission products in vivo, as in the treatment of malignant conditions. In other situations this application of chelating agents could be of value in protection against body deposition of atomic fission products.

The ability of calcium EDTA to exchange for other metals in vivo has raised the question as to whether the agent could be utilized for treatment of several kinds of abnormal metal metabolism that have defied chemotherapeutic treatment until now. For unknown reasons the body sometimes may absorb more iron than it can use or safely store. Treatment of this "iron storage disease" has depended on the unsatisfactory method of bleeding of the afflicted patient. Trial of calcium EDTA in this condition has shown that the compound can cause an increase in the urinary excretion of iron.[13] By utilization of an EDTA structural variant, Versenol* with more favorable iron binding characteristics it has been possible to enhance the degree of iron excretion that could be attained.

*Registered Trade Name of the Bersworth Chemical Company for the compound, betahydroxyethylethylene diamine-N, N-triacetic acid.

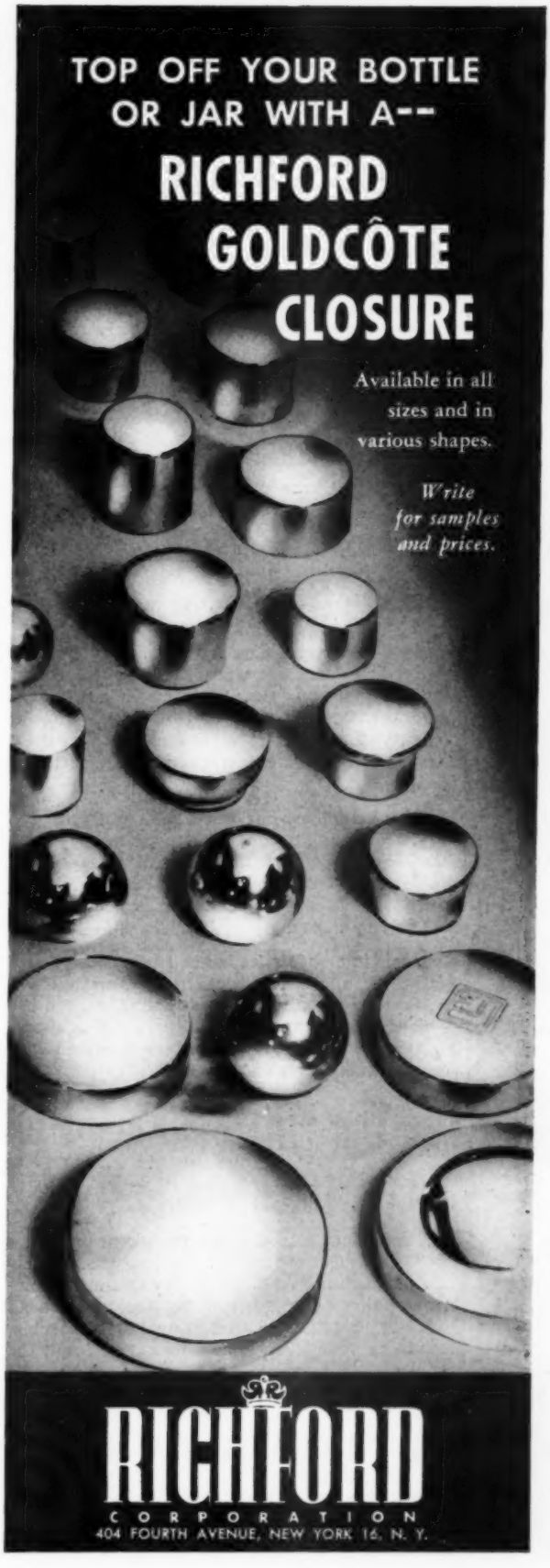
Copper storage disease, or Wilson's disease, is an analogous condition in which there is excessive deposition of copper in the tissues. A beginning has been made in the chemotherapeutic treatment of this condition through the use of chelating agents.[14]

Various metals form essential components of the enzymes in the body essential for the metabolic destruction and formation of our tissue component. Chelating agents may influence the action of these metal enzymes to cause activation or depression of their function. While the subject is too complicated to be covered in this summary presentation it may be of interest to point to a recent note on the action of calcium EDTA on the pathological deposition of cholesterol in the organism. In a significant study it has been shown that pathological deposition of cholesterol in rabbits on a high cholesterol diet may be prevented or reversed by administration by mouth or injection of calcium EDTA.[13] Is this a new lead in the possible treatment of arteriosclerosis, one of the major medical problems today?

Anemia due to lack of iron is one of the more frequent conditions encountered in general medical practice. It detracts from one of the preparations on the market today to suggest that presently available oral and injectable iron preparations could be improved. Quantitative measurement of the relative iron binding strengths of synthetic chelates and naturally occurring iron transporting protein has provided a rational basis for the development of an effective injectable iron compound. Choice of a chelating agent of proper iron binding strength has yielded an iron chelate which may donate its iron to the unsaturated iron stores of the body as needed but which will assist in the excretion of iron in excess of the quantity required for hemoglobin regeneration. Analogous considerations from the viewpoint of the oral movement and absorption of iron have yielded an effective iron chelate for oral iron administration.[16]

In the last few decades organic iodine compounds have achieved a predominant position for the x-ray visualization of internal organs of the body. The lack of utility of metal salts for this purpose stems not from any deficiency of metals as radio-opaque substances but rather from the toxicity usually associated with the internal application of metal ions. When converted to suitable chelate form the metals retain their ability to stop x-rays and thus cast a shadow on the x-ray film but lose their toxic manifestations to a marked degree. Present studies indicate that one may anticipate an interesting entry of metal chelates in this field of pharmaceutical application.

Administration to the body of metal chelates of weaker bond strength than that of calcium EDTA results in interesting pharmacological effects. In this situation the weaker metal is turned loose and the calcium EDTA complex is formed. When the administered EDTA chelate is that of magnesium there results a simultaneous elevation in magnesium levels



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with a reduction in the level of its physiological antagonist the calcium ion. The net result of adding to one side of this mineral balance seesaw while removing weight from the other is to cause a marked increase in the usual pharmacological actions of magnesium ion. Lowering of the blood pressure is one of the major of these effects. The results of this type of deliberate mineral balance shift are effective enough to result in clinically observable change.[17]

The interesting results described above have been recorded for studies of a single structural type of chelating agent within a period of less than a handful of years. It may be confidently anticipated that future developments will bear out the early promise of this field.

Editor's Note: Applications of chelating agents to drug and cosmetic technology will be discussed in another article to be published shortly.

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EXPORT LAW IN FEDERAL F.D.C. ACT

(*Continued from page 509*)

Reasons Advanced in Support of the Proposed Legislation . . .

The presumed basis for the proposed legislation is found in the Report submitted by the Committee on Interstate and Foreign Commerce in connection with the original Van Zandt Bill introduced January 3, 1949. The Report gives the following reasons for the Bill:

"First, there are complaints of American citizens residing or traveling abroad, that the protection extended to them in the United States with respect to adulterated and misbranded foods, drugs, devices and cosmetics does not reach beyond the borders of this country, and when buying American products in foreign countries they are running the risk of receiving adulterated and falsely labeled products. Secondly, our good-neighbor policy and our position of world leadership in the world make it incumbent upon us not to use foreign nations as a dumping ground for inferior merchandise. Thirdly, apart from the question of international morality, it is in the best interest of developing good export markets for our domestic products that dangerous, adulterated, or falsely labeled goods be excluded from exportation just as they are banned from our domestic market. Fourthly, those who seek to

discredit our efforts at promoting international good will and peace can properly charge us with insincerity, at least in this specific instance, if our laws permit the exportation of adulterated and misbranded foods, drugs, devices and cosmetics from which we seek to protect our own citizens.

These reasons do not appear to afford a sufficient or proper basis for the legislation.

Drug Laws in Foreign Countries

While we are zealous in protecting the health of the American public through effective drug laws, our government has no monopoly over this activity. Foreign governments are also active in safeguarding the health of their people through drug laws and regulations.

All of the Latin American countries require Board of Health Registrations for drug products, whether imported or manufactured locally. Specifically, such requirement, which is by no means a routine matter, exists in Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela. Board of Health Registrations are also required in Cuba, the Dominican Republic and the Philippine Islands. In order to obtain such registrations, most of the local Boards of Health require the submission of information with respect to many of the following matters:

1. Description of product
2. Quantitative and qualitative formula
3. Structural formula
4. Pharmacological action of the product
5. Pharmacological action of the ingredients
6. Indications
7. Dosage for children and adults
8. Mode of administration
9. Manufacturing process
10. Assay and titration
11. Name and address of manufacturing laboratory
12. Form of product (liquid, powder, tablets, etc.)
13. Laboratory affidavit
14. Certificate of free sale in country of origin
15. Professional literature

In addition, samples of the products for testing purposes, as well as the labels therefor, must be submitted. In most instances, the labels are required to contain many of the following items:

1. Proper pharmaceutical dosage form
2. Name of producing establishment and its location
3. Formula
4. Indications
5. Dosage and directions for use
6. Contraindications
7. Name of responsible pharmacist
8. Name and address of importer

(*Continued on page 586*)

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(Continued from page 585)

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11. Quantity of the product
12. Statement as to sale with or without physician's prescription
13. Registration number and legend

Board of Health licenses or registrations are also required in many other countries, including France, Italy, Greece, Sweden, Norway, Denmark, Switzerland, Spain, Portugal and Turkey. The adoption of registration requirements is now under consideration in Egypt and the Near East countries. In countries where Board of Health registration is not required, there are stringent drug laws in effect, as for example, in England, Canada, Australia, the Union of South Africa, India and Jamaica. While this discussion is not intended to be a summary of the drug laws throughout the world, it can be stated unequivocally that there is no dearth of drug control in foreign countries.

Certainly there does not appear to be any real need for enacting legislation in this country for the purpose of protecting the health of foreign peoples who have their own laws and standards, and who can adopt supplemental remedial legislation if and when, in the opinion of the foreign governments at interest, the need for such further protection arises.

Effect on International Good Will

Nor can it be suggested that we are promoting international good will by attempting to impose our standards of drug control on foreign nations who have adopted their own standards. Very few of us would welcome our next door neighbor coming into our home and prescribing for us the manner in which we should live our lives and conduct our business. His visit would be brief indeed. Intervention in the internal affairs of foreign countries seems hardly the way to gain their good will. The following translated portion of a letter which was written recently by the Head of the Mexican Dept. of Control of Medicines, Registration Section, is an illustration of the ill will which may be created by the proposed legislation:

"* * * the Secretariat of Health and Assistance under no circumstances permits the introduction or sale of local or imported medicinal products until they are duly registered and approved by this Office, for which they must satisfy the requirements of the Sanitary Code in force.

"For this reason not only is it unnecessary for the Sanitary authorities of foreign countries to decide regarding the quality or therapeutic value of the products which it is desired to introduce into our country, since this is under the control of the Administration of Control of Medicines, Office of the Secretariat of Health and Assistance of his Republic,

but it is an illegal intrusion in the sanitary and administrative affairs of the country."

It should be noted that the protection of our Federal Food, Drug & Cosmetic Act is *now* available to foreign purchasers, at their option. Section 801(d) of the present Act provides that a food, drug, device or cosmetic intended for export shall not be deemed to be adulterated or misbranded under the Act if it accords to the specifications of the foreign purchaser. Such a purchaser can, therefore, readily obtain the benefits of our drug law by simply specifying that the imported merchandise shall comply with the Federal Food, Drug & Cosmetic Act. To make our drug law *available* to foreign countries is an act of good will. However, to *impose* our law on foreign countries might well be construed as an unwarranted intrusion upon their sovereignty.

Local Effectiveness

Assuming a need for the proposed legislation in some foreign countries, either because their governments are incompetent or are indifferent to the welfare of their people, will the extension of our drug laws to our foreign commerce satisfy that need by eliminating misbranding and adulteration, according to our standards, in those countries? The answer is "No." Certainly it will prohibit misbranding and adulteration of American made goods. However, it will have no such effect on drugs made locally or imported from other foreign countries. In other words, our good intentions would in any event fall far short of their noble objective. Effective drug control can only be accomplished by regulation in the country of consumption. To impose controls on exports from one country would obviously be ineffective unless the same controls were imposed on local manufacturers and manufacturers exporting goods from other countries. If, then, this proposed legislation is to be regarded as an exercise of the police power, it surely cannot be justified on the basis of its expected accomplishment.

Effect on American Export Trade

Can the proposed legislation be justified on another basis, namely, as being in the best interest of developing good export markets? The American drug industry is facing serious competition in export markets from local manufacturers and from manufacturers in England, France, Germany, Italy, Switzerland, Sweden and in other countries. Any legislation which imposes a competitive handicap on American exports to which exports from other countries are not subject, should be approached with caution if we are, indeed, interested in promoting the foreign commerce of the United States.

Under the Van Zandt and Wolverton bills, a drug would be misbranded if it is not labeled in the English language unless it is labelled in the language of the country to which the article is exported. This would prevent the use of standard labels in Spanish, French

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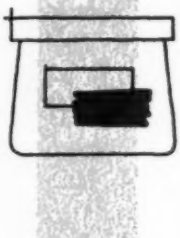

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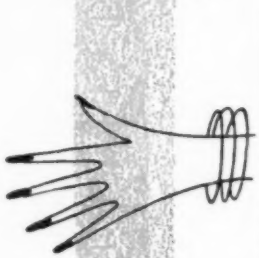

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or other languages for groups of countries where such languages are spoken, if in a particular country, another language is the official language of that country. The use of special labels in such cases would substantially increase export costs.

The label statements required by our drug law in addition to the many statements required by the laws of various foreign countries would make label preparation a serious problem, particularly in the case of small labels;—a problem which drug manufacturers in other countries would not have to meet.

The warning statements which are required in the labelling of certain drugs under our drug law, but which do not appear in the labelling of the same drugs manufactured in other countries, may well give the local user the impression that our drugs are more toxic and therefore less desirable.

A similar impression may be obtained by a local user from the statement required by Section 503(b): "Caution: Federal law prohibits dispensing without prescription," when no other foreign or local drugs bear this statement. Certainly this statement is inappropriate for use in foreign countries where our Federal law has no application.

The label statement of the common or usual name of the drug or of its active ingredients, which is required under our law, presents another problem, for there are different common names for the same drugs in various countries.

The special packaging required by Section 502(g) of the Federal Act is still another problem where such standards are not recognized or followed in a foreign country and where the same drugs which are manufactured locally or are imported from other countries are not subject to these requirements.

Labelling is a local matter, and is governed by local laws, regulations and customs. It should not be dealt with on an extra-territorial basis. Any attempt on our part to do so, by imposing requirements on our exports which are not recognized or followed locally, would be a serious impediment to the development of our export trade, and a more than welcome advantage to foreign competitors who would be completely free of such restrictions.

Extra-territorial Enforceability of Proposed Bill

Another important factor which should be considered in viewing the propriety of the proposed legislation is its enforceability. Section 503(b) of the Federal Food, Drug & Cosmetic Act provides that habit-forming and toxic drugs shall be dispensed only upon a physician's prescription, and that all such drugs shall bear the statement "Caution: Federal law prohibits dispensing without prescription." The section provides further that "the act of dispensing a drug contrary to the provisions of this paragraph shall be deemed to be an act which results in the drug being misbranded while held for sale."

RAUWOLFIA SERPENTINA

(Continued from page 501)

vides effects superior to extracted fractions or single alkaloids, uses a three-phase bioassay procedure. All new root batches are compared with a standard root batch; the hypotensive, sedative, and bradycardic activity of which has been confirmed in extensive clinical trials.

Similarly, in the cases of alseroxylon, each batch of the alkaloidal extract is tested in dogs for its ability to lower blood pressure, produce sedation, and slow the heart rate. The Thompsons[13] have reported the development of colorimetric assay that parallels biological activity. A fluorimetric method for the determination of Rauwolfia serpentina alkaloids has been described by Bakshi.[14]

The various preparations from Rauwolfia serpentina have been subjected to extensive pharmacologic investigation, with increasing emphasis on their hypotensive action. For example, the studies of Nelson and Schlagel[15] showed that preparations of Rauwolfia are relatively potent hypotensive agents as indicated in anesthetized normal dogs. Sturtevant[16] found that the administration of the powdered root to rats with metacorticoid hypertension resulted in a sustained depression of blood pressure.

As yet, the mechanism of action is poorly understood,[17] but it probably works through the central nervous system.[18] As explained by Wilkins and Judson,[1] although the chemistry and the pharmacology of the drug are not completely worked out, it appears to be different from many of the other agents currently being tried. It does not cause postural hypotension and hence is not regarded as a "blocking" drug. It has definite sedative effects.

The fall in blood pressure induced by Rauwolfia preparations is gradual but sustained. Some effects may be noted within a few days, but the full action may not appear for several weeks, and may last for a week or more after the drug is discontinued. These preparations slow the pulse rate and are thus helpful in patients with tachycardia associated with hypertension. This bradycardic action is said[1] to be one of the drug's most definite objective effects.

Toxicologic studies and clinical observations indicate that Rauwolfia preparations are "quite safe."[18] Meilman[17] cites the report of a patient who took a large overdose and suffered no ill effect. He also notes that tolerance to the drug apparently does not develop, even when it is given continuously.

No serious side-effects have been observed in patients who have been treated with these products.[2] However, nasal congestion is fairly common. Patients usually attribute this symptom to a chronic cold but sometimes it is sufficiently annoying to make them try nose drops for relief. In a number of cases there is a gain in weight. Pointing out that there is no adequate explanation for such increases, Wilkins and Judson[1] observe that the clinical evidence does not indicate any

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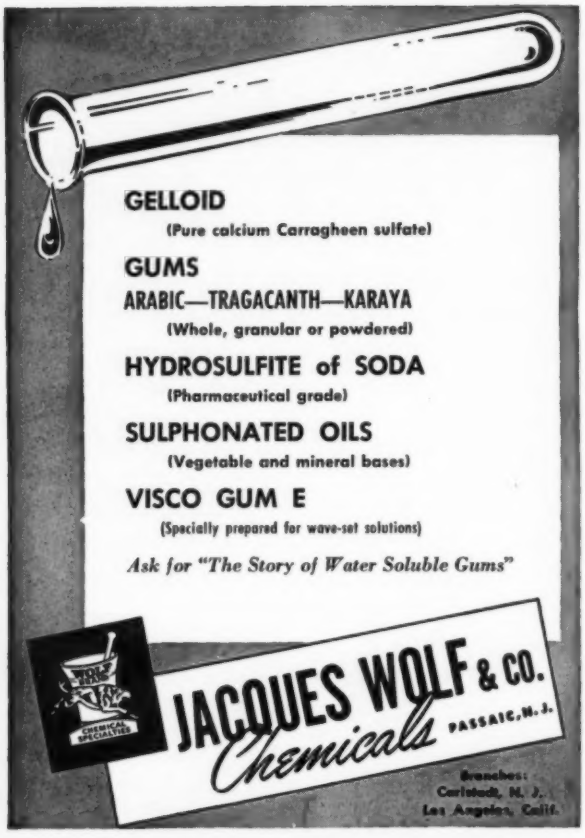

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change in the basal metabolic rate. Rather, it appears that the patients are more relaxed and less active, sleep better and longer, and perhaps eat as much if not more while on the drug than before. A few patients reported extraordinary dreams or nightmares during therapy, but these were relieved by reducing the dosage or by complete withdrawal of medication for several days. It is reported[17] that diarrhea sometimes occurs after excessive doses.

Many clinical reports on Rauwolfia products are awaiting publication, but those already appearing in the medical journals clearly indicate the role of the drug in hypertension. The data in these reports show that the hypotensive action of these agents is of moderate intensity. On the basis of extensive experience, Wilkins[19] states that rauwolfia or alseroxylon are particularly useful for relieving young, labile psychoneurotic patients with tachycardia. Symptomatic relief is sometimes quite dramatic.[1] A sense of relaxed well-being, decrease in irritability, improved personality, and relief of headache, fatigue and dyspnea were frequently described by patients on rauwolfia medication. Controlled studies indicate that these symptomatic benefits are "quite real" and are perhaps the most easily identifiable effects of the drug.

In clinical studies, in which placebo controls were used, Vakil[20] showed that 44 per cent of patients on Rauwolfia Medication had a fall in blood pressure. In addition, he reported that the hypotensive action was still evident in most of these cases four weeks after the drug had been discontinued.

Similar results have been reported by Wilkins and Judson.[1] They found that the average blood pressure in a group of 39 patients before treatment was 192 systalic, 112 diastolic, and the pulse rate was 82, whereas after treatment with rauwolfia alone these levels were 165, 95 and 70, respectively. By using placebos, these workers were able to produce a slight fall in blood pressure, but there was no dimunition of pulse rate.

In addition to its use alone, a Rauwolfia preparation is considered[19] to be an excellent adjunct or "background drug" for smoothing the action and moderating the side-effects of other more powerful hypotensive agents. Indeed, it is felt[1] that such a preparation is "most useful" as an adjunct to these more potent pressure-lowering drugs. Wilkins[21] has pointed out the "striking additive if not synergistic" effects of rauwolfia with veratrum and hydralazine (Apresoline, Ciba) in severer forms of hypertensive disease.

In discussing the current drug therapy of high blood pressure, this investigator[19] suggests that a common plan of treatment of an uncomplicated case of essential hypertension is to begin with the mildest agent, a Rauwolfia product. This, says he, will usually relieve such symptoms as anxiety, headache and palpitation and will often lower the blood pressure, especially on the only moderately severe, labile hypertensive patient who has tachycardia before treatment. If this does not suffice after a few weeks' trial, either hydralazine

or veratrum may be added to the milder drug in gradually increasing doses, as required.

In another discussion, Wilkins[22] advises that the addition of a Rauwolfia preparation to the therapeutic schedule of a patient receiving veratrum or hydralazine often results in a further reduction of pressure with less side-effects, usually because the dose of the first drug can be reduced. Occasionally a third agent is necessary in a regimen of two drugs before the blood pressure can be lowered.

Similar recommendations have been made by Ford and Moyer.[23] Like Wilkins, they also suggest that in unresponsive or more severe cases of hypertension, a Rauwolfia product may be combined with the powerful drug, hexamethonium.

It is suggested[22] that veratrum may be added to the Rauwolfia drug schedule, especially when the pulse is over 90. Veratrum, which is administered as an extract or as a pure alkaloid (e.g. protoveratrine), exerts a powerful, centrally active neurogenic vasodilator effect which slows the pulse rate. However, it has a narrow dosage range that is limited by the occurrence of nausea and vomiting. When given together with a Rauwolfia product, veratrum seems to cause less nausea and vomiting in relation to its hypotensive effect than when given alone.[19]

Wilkins and Judson[1] found that several patients who had been raised to the maximum veratrum dosage that that could be tolerated without nausea, had a greater fall in blood pressure, occasionally associated with nausea and vomiting, when rauwolfia was also given. By a slight reduction in the veratrum dose, it was possible to control the emetic symptoms while maintaining the hypotensive response.

Combinations of alseroxylon with mixed Veratrum viride alkaloids (alkavervir) are available to facilitate such medication. Typical products include Rauwiloid + Veriloid (Riker), Rauvera (Smith-Dorsey), and Rau-Vertin (National).

It was also observed by Wilkins and Judson that patients given hadralazine alone, with only moderate hypotensive response, had a further definite reduction in blood pressure when rauwolfia was added to the regimen. Thus, in 23 cases, the average blood pressure was 206 systolic and 116 diastolic before treatment with this combination. It fell to 166 systolic and 93 diastolic after the combined therapy. Except for nasal congestion, rauwolfia also, appeared to reduce the side-effects of hydralazine, particularly the palpitation and headache.

In some cases, a mixture of all three drugs—a Rauwolfia preparation, veratrum, and hydralazine—may be given to obtain the desired hypotensive effect.[22] In one clinical study,[1] the average blood pressure of 18 patients was 195 systolic and 117 diastolic during the control period. It fell to 144 systolic and 82 diastolic during treatment with the triple combination. The drugs are usually well tolerated in combination.[19]

When several weeks of trial with all three drugs does not serve to control the blood pressure in progressively

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severe cases of hypertension, Wilkins[19] feels that it may be justifiable to try hexamethonium. In some cases, this potent drug which must be administered with caution, may be combined advantageously with a Rauwolfia product. This was indicated in studies by Ford and Moyer[23] on 25 hypertensive patients treated with alseroxylon plus hexamethonium. All of these patients showed a decrease in mean blood pressure of at least 20 mm. mercury, while 20 patients became normotensive. In addition, there were fewer side-effects from hexamethonium because the effective dose was lower when combined with alseroxylon.

Hence it is suggested that most patients with severe essential hypertension can be treated initially with the Rauwolfia preparation, but those patients who do not respond within six to eight weeks should also be given hexamethonium. However, in the severe and progressive type of case, hexamethonium should be used initially, supplemented later by alseroxylon. A product that combines these hypotensive drugs is available as Rauwiloid + Hexamethonium (Riker).

In passing it may be mentioned that rauwolfia has also been combined with mannitol hexanitrate, another drug used in the treatment of hypertension. Such a preparation, which also includes rutin, is available as Maxitate with Rauwolfia Compound (Strasenburgh).

As with other botanical drugs, investigators have sought to isolate the substances responsible for the plant's action. In the case of Rauwolfia serpentina, most workers have concentrated on the isolation and testing of the various alkaloids. According to one review,[2] German researchers have reported that the roots contain at least 15 alkaloids of which two or three may be therapeutically active. More recently, Schlittler and MacPhillamy[24] stated that at the present time some 10 to 15 crystalline substances have been isolated from the root extract of Rauwolfia serpentina. These may be divided chemically, in the main, into the strongly basic yellow alkaloids, such as serpentine and serpentinine, and the colorless weak bases, such as ajmaline, rauwolscine, and reserpine.

Of these, reserpine is the most important alkaloid and the one receiving the most extensive laboratory and clinical study. It is significant, in view of any possibility that supplies of Rauwolfia serpentina from India may be curtailed, that reserpine has also been isolated from another Rauwolfia species, Rauwolfia heterophylla, which is indigeneous to Central and South America.[55]

The isolation of reserpine from Rauwolfia serpentina was reported by Muller, Schlittler and Bein[26] in 1952. Obtained from the so-called "oleoresin fraction," it is a relatively weakly basic alkaloid. It is insoluble in water and moderately soluble in alcohol. The empirical formula for reserpine was shown[27] to be $C_{33}H_{40}O_9N_2$. The exact structural formula has not yet been completely worked out. However, it is established that reserpine is an ester-alkaloid that can be hydrolized to give reserpic acid, trimethoxy benzoic acid and methanol.[28]

When first made available last November as Serpasil,

reserpine had already been subjected to quite considerable laboratory and clinical investigation. Some of the data obtained from these studies have been published and much additional information was presented at the conference held at the New York Academy of Sciences on February 5, 1954. From these reports it appears that this crystalline alkaloid has most of the therapeutically desirable effects of rauwolfia.

Pharmacologic studies reported by Plummer and his associates[24] show that the actions of reserpine on laboratory animals are related to its influence on the central portion of the autonomic nervous system, and upon the cardiovascular system, especially with respect to the reflexes which regulate blood pressure levels. It is noted that the following effects are of significance in connection with the influence of reserpine on the central nervous system: (a) quietude and reduction of emotional response, (b) relaxation of the nictitating membrane, (c) bradycardia, (d) miosis, (e) hypothermia, (f) augmented intestinal activity, and (g) increased secretion of gastric hydrochloric acid.

These investigators have found that reserpine brings about a state of quietude, a reduction in spontaneous activity and a lessening of the emotional reaction of an animal to disturbing situations which ordinarily provoke a defense or flight response. In contrast to the barbiturates, reserpine in effective sedative doses does not appear to induce sleep nor loss of consciousness with resultant loss of muscular coordination, nor does it act as an antagonist to convulsant poisons.

In discussing drugs for hypertension, Wilkins[22] observed that reserpin, the pure alkaloid derived from Rauwolfia serpentina, contains the sedative fraction of the drug. It requires from three to six days to become active, three to six weeks to reach maximum effect, and three to 14 days to pass off.

In a paper presented before the Rauwolfia conference, he[24] estimated that reserpine, comparing the dose by weight, is 1,000 times as potent as the crude powdered drug. He also stated that, in hypertensive patients, rauwolfia, alseroxylon, or reserpine had identical desirable effects, including hypotension, bradycardia, and relief of headache, dizziness, palpitation, nervousness, irritability and anxiety. However, it has been reported[29] that the bradycardic effects of reserpine are less pronounced than those of alseroxylon. Reserpine has a wide margin of safety and side-effects, when they occur, are mild; being similar to those produced by rauwolfia.

Clinical studies have affirmed the value of reserpine in the treatment of hypertension. Wilkins,[24] for example, observed that reserpine alone in 58 patients caused decreases in average blood pressure and pulse rate from 191/109 to 167/94 and 85 to 75, respectively. Winsor[29] also reported good results with reserpine in ambulatory outpatients with essential hypertension. In a report to the recent Rauwolfia conference, he[24] stated that the average fall in systolic and diastolic pressure in 20 patients receiving an average dose of 0.5 mg. of reserpine daily was 28.6 per cent and 11.8

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per cent, respectively. The average fall in pulse rate was 14.6 per cent.

At the same meeting, Moyer[24] reported that about 50 outpatients with variable degrees of hypertensive vascular disease have been treated with reserpine for periods of two to eight months. The results indicate a significant reduction in blood pressure in from one to three months in about half the patients. About one-third of the patients became normotensive. However, the blood pressure in patients with severe disease rarely returned to normotensive ranges. Moyer noted no incapacitating side-effects in these cases, although bradycardia and sedation were frequently observed.

Like rauwolfia and alseroxylon, reserpine is a useful adjuvant to other more potent hypotensive agents. Thus, in hypertension of moderate degree which did not respond to reserpine alone, Freis and Ari[24] combined the drug with the veratrum alkaloids or hydralazine or both. In severe hypertension not responding to these forms of therapy, reserpine was combined with the new ganglionic blocking agent, Pentapyrrolidinium (M & B 2050). The addition of reserpine to this agent resulted in an additive effect in about 40 per cent of the cases tested. In approximately half this number the dosage of the blocking agent could be reduced.

Similar observations were made by Dustan and her associates.[24] They reported that in some patients with hypertension, reserpine is an effective depressor agent. This effect is seen in some whose disease is severe or malignant. Reserpine is also useful in some patients under treatment with other hypotensive agents. In these instances it may act additively or by suppression of side-effects.

Although at present the treatment of hypertension is the chief indication for administering Rauwolfia preparations, there is evidence that these products will also be of value in the therapy of other conditions. This is not surprising in view of the many empirical uses to which the drug was put by Indian medical men.

Modern studies[3,30] point to the possibility that the drug's sedative and calming action may be employed with benefit in the treatment of mental conditions. In his search for a much-needed non-hypnotic sedative for treating mental diseases, Klein[24] has tested the efficacy of Rauwolfia preparations in some 700 mental hospital patients. Both pulse rate and blood pressure were significantly reduced by the drug and the effects persisted for at least one month after medication was withdrawn. Alterations of psychic states in psychoneurotic and normal controls were noted. Using various indices to evaluate sedation in mentally ill patients Kline found that a statistically significant sedative effect was obtained with the drug.

In investigations to determine the value of reserpine in gynecologic disorders, Greenblatt[24] found that this preparation seems to have a mild calming and sedative effect in tension states, premenstrual tension, and in monopausal patients, especially where hypertension is coexistant in the latter group. Reserpine appears to be of little benefit in dysmenorrhea and frigidity. It did not

interfere with ovulation. Side-effects, such as headaches and nausea in a few patients with normal or low blood pressure readings, could be overcome by lowering the dosage.

Research on Rauwolfia serpentina and its preparations continues in many quarters. Some of this work will help to further evaluate the worth of the drug as a hypotensive. After investigations based on modern scientific techniques will serve to broaden the usefulness of this ancient medicament.

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PHARMACEUTICAL COMPETITION

(*Continued from page 505*)

doing brilliant work for a firm not truly in the pharmaceutical manufacturing industry. This man and a $300,000 budget for research should move this company from practically nowhere in this important class of products, right into a front position at least as far as knowledge or know-how is concerned.

Extremely important in this research and development phase of the pharmaceutical business is the patent department. This is clearly illustrated by the present controversy over just who has the basic rights to the recently introduced antibiotic, tetracycline. Although this drug is now being marketed by Lederle and Pfizer, no patent has as yet been granted on the product. And fighting it out in the patent office for the basic patent are not only Lederle and Pfizer, but also Bristol Laboratories who have recently been granted an interference in the patent squabble. Lederle and Pfizer have agreed that whichever one of them obtains the patent will license the other, but what if Bristol Laboratories gets it?

The competitive situation in cortisone, as well as in penicillin and other drugs, illustrates what can happen when no patent can be obtained. Furthermore, quite often it is impossible for the originator of a product which is unpatentable to obtain any sort of a head

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start in the market because the others are right on his heels. This is mainly due to the fact that these other companies are keeping abreast of developments in all kinds of products and are ready to take the last step which made the product of their competitor possible.

All of this makes the cost of doing business in the pharmaceutical business high if a manufacturer is to attempt to climb to the top of the heap, or if he is to attempt to stay there. There will always be houses in the industry who will build up sizable volumes on products, few of which, if any, are original, and for them the cost, at least from the research and development end, is not so high. However, the leaders in the industry, who should be the ones responsible for raising the industry to still greater heights, are spending huge sums of money to develop new and better products, and to bring these products as rapidly as possible to the attention of the medical profession.

EMOLLIENT AND LUBRICATING CREAMS

(*Continued from page 499*)

to incorporate large quantities of lanolin and other emollients into an emulsion system while they exert an appreciable emollient effect themselves.

With the advent of the so-called moisture creams which would fall into the lubricating and emollient cream category these hydrophylic agencies are being examined with greater interest. Certain of the newer absorption bases derived from lanolin also seem to be becoming popular because of their ability to retain moisture applied so the skin is part of an emulsion. This moisture retention may be considerably enhanced by the introduction of many of the different humectants now commercially available. Sorbitol and propylene glycol are being used in greater quantities for this reason.

PATENT THOUGHTS AND TRENDS

(*Continued from page 565*)

that it may not be necessary to go out and synthesize an entirely new compound in order to solve a problem. It may well be that right in our own "yard" we may find the answer to our problems, if we only give the matter a little thought.

Trade-Marks

Some recent trade-mark holdings, mostly emanating from the Patent Office, are abstracted below, with the thought that this information may be of help to those who have the fascinating job of coining trade-marks which are distinctive and at the same time meet with sales and advertising departments' approval.

"*Tweez-eez*" is not confusingly similar to "*Twissors*," both marks being used on Toilet tweezers. Kurlash v. Millers Forge Mfg. Corp., Comm. of Patents.

"*Dear to Me*" for perfume and cologne is confusingly similar to "*Endearing*" for perfume, eau de cologne, toilet water, bath powder, and face powder. Bourjois, Inc. v. Cecile Gagnon Company, Comm. of Patents.

"*Copper Tan*" is confusingly similar to "*Coppertone*" for similar preparations. Douglas Labs. v. Copper Tan Inc., Court of Appeals (2).

"*Histapro*" for anti-histamine tablets sold over the counter is not confusingly similar to "*Histapon*" for medicine, sold only on prescription, for treatment of gastric ulcers. Endo Products v. National Package Drugs, Comm. of Patents.

"*Forbidden Love*" is confusingly similar to "*Le Fruit Defendu* for perfumes and cosmetics. Bordenkircher v. Solis Entrialgo & Cia, Comm. of Patents.

"*Stanē*" for toilet soaps, cream, soapless and coconut oil shampoos is not confusingly similar to "*Stanley's*" or "*Stanox*" for soap. John T. Stanley Co. v. Floreskul, Comm. of Patents.

"*Hem-O-Ral*" for oral preparation sold over the counter for relief of hemorrhoids is not confusingly similar to "*Demerol*" for antispasmodic and analgesic preparations sold only on prescription. Winthrop-Stearns v. Freeman. Patent Office Examiner in Chief.

Neither "*Wondra*" for shampoo and cosmetic cream nor "*Wanda*" for soap is confusingly similar to "*Wonder Crême*" for cosmetic cream. Newstead v. Procter & Gamble. Comm. of Patents.

"*Lipofax*" for vitamin product used in management of artherosclerosis and for hypotonia is not confusingly similar to "*Lubafax*" for surgical lubricant, "*Skeetofax*" for mosquito repellent, "*Borofax*" for borated ointment, "*Tannafax*" for tannic acid ointment, "*Carofax*" for burn ointment, "*Menthofax*" for ointment for muscular pains, and "*Timofax*" for fungicidal preparation. Burroughs Wellcome v. Mezger Pharmacal Co., Patent Office Examiner in Chief.

"*Nuprin*" is not confusingly similar to "*Empirin*" for preparations for the relief of muscular aches and pains associated with the common cold. Burroughs Wellcome v. Testagar. Patent Office Examiner in Chief.

"*Ce-Vi-Sol*" is not confusingly similar to "*Cevitabs*" for vitamins. Mead Johnson. Patent Office Examiner in Chief.

Recent Patents

2,668,768—**Universal Oil Products—Stabilization of Edible Fats and Oils with 4-Alkoxyphenols Having at least One Ring Hydrogen Substituted by an Alkylthioalkyl Group.**

2,668,858—**Ciba—Hydrindenediones.**

2,668,812—**Am. Cyanamid — Penicillin Salt of N,N′-Bis-p,p′-Carbodiethylaminoethoxyphenyl Urea.**

2,668,813—**Hoffmann-La Roche—Basic Ketones.**

2,668,814—**Merck—Alkanoic Acid Esters of Amino-alcohols.**

2,668,816—**Ciba—Prepn. of 17,20 Hydroxyketones of the Pregnane Series.**

2,668,817—**Upjohn—3,11 Alpha, 20-Triacyloxy-3, 17(20)-Pregnadienes.**

2,668,850—**Hoffmann-La Roche—Phenyl-Phenethly Ketones.**

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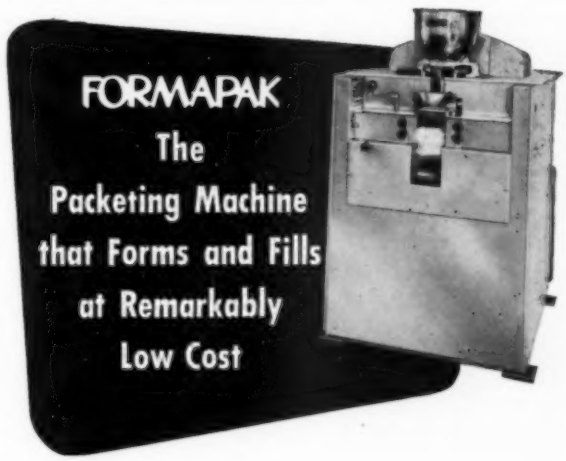

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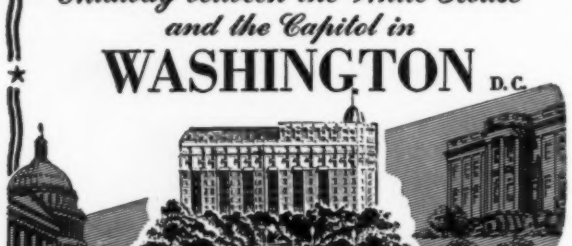

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2,670,374—G. D. Searle—N - Dialkylaminoalkyl Aminobenzanilides and N-Aralkylaminobenzamides.

2,671,044—Am. Cyanamid Co.—Triethylene Melamine-Containing Composition for Lenkemias and Lymphamas.

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2,671,088—Nat. Research Development Corp. (England)—Antithyroids.

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2,672,483—**Upjohn — 2 - Diphenylacetyl - 1,3, - Indandione. Anti-coagulant.**

INDUSTRY'S BOOKS

(Continued from page 567)

Pharmacology and Therapeutics, *by Arthur Grollman, Ph.D., M.D., Lecturer in Pharmacology and toxicology, The Medical Branch, and Professor and Chairman of the Department of Experimental Medicine, The Southwestern Medical School, University of Texas, Second Ed., 866 pp., Illus., (1954), Lea & Febiger, Phila., Cloth,* **$10.**

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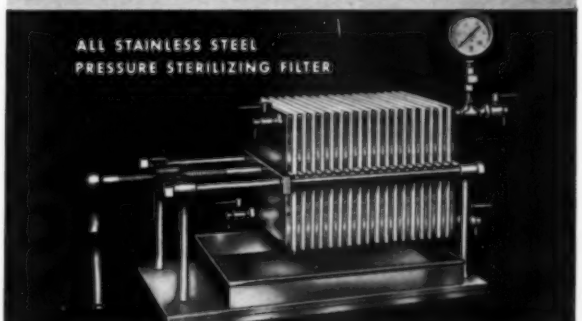

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is the chapter on water and inorganic salts, with a clear exposition of the role of salt and water metabolism in health and disease. The useful epitome of prescription writing remains as one of the many helpful features.

Canada's Food and Drug Laws, *by Robert Emmet Curran, B.A., LL.B., Q.C. 1138 pp., Commerce Clearing House, Inc., New York, (1953), Cloth,* **$19.50.**

This is the fifth research book in the "Food Law Institute Series." It is an annotated and indexed compilation of Canada's food and drug laws (including the cosmetic and other related laws), Dominion and Provincial. It also includes the text and detailed comments covering an Act Respecting Food, Drugs, Cosmetics and Therapeutic Devices passed by the Parliament of Canada in April 1953, but which is not expected to come into force until some time early in 1954. The inclusion of that Act, therefore, provides the latest legislative record on its important subject. The contents of this book are defined by a Table and its organization is explained in the Introduction. The work is divided into the following main parts. Part I—General. Part II—The Food and Drugs Act. Part III—Texts of Early English Food and Drug Statutes. Part IV—Texts of Canada's Food and Drug Acts and Regulations. Part V—Texts of Related Federal Food and Drug Statutes and Regulations. Part VI—Texts of Related Provincial Food and Drug Laws and Regulations. Part VII—"An Act respecting Food, Drugs, Cosmetics and Therapeutic Devices." Table of Statutes—Federal. Table of Statutes—Provincial. Table of Cases. Index. The author of this book is Robert E. Curran, Q.C., of Ottawa, who is well qualified to deal with the subject. For since 1945 he has been the Legal Adviser to Canada's Department of National Health and Welfare, which administers its Food and Drugs Act, its Proprietary or Patent Medicines Act, and its Opium and Narcotic Drug Act.

A Text-Book of Pathology *(An Introduction to Medicine), by William Boyd, M.D., Professor of Pathology, University of British Columbia, Vancouver, Sixth Ed., 102 pp., Illus., Lea & Febiger, Phila., (1953), Cloth,* **$12.50**

The essentials of present-day pathology are covered fully in this book. Dr. Boyd does more than discuss general pathologic principles. He stresses the underlying basis of the individual diseases treated by internists and surgeons. He correlates disturbed physiology with morbid anatomy, and forms a true introduction to medicine. In preparing the revision for this edition, the author has considered every paragraph of every page. Everything which has become out of date as a result of widespread recent advances has been eliminated, and a vast amount of new material has taken its place. Many new lesions and new diseases have appeared in the wake of the great wave of successful therapy. Viral pneumonias have replaced the bacterial forms. The lesions of healed periarteritis nodosa and tuberculous meningitis are not without danger.

The wholesale change in the normal bacterial flora of the bowel produced by antibiotics may have dangerous or even fatal consequences. The new outlook is reflected throughout the present edition. The book is profusely illustrated with photographs of gross and microscopic material, including 77 new figures and three new color plates.

Antibiotics Annual 1953-1954 (*Proceedings of the Symposium on Antibiotics*), *Chairman: Henry Welch, Ph.D., Director, Division of Antibiotics, Food and Drug Administration, 632 pp., (1953), Medical Encyclopedia, Inc., New York, Cloth,* **$8.**

Recently "Antibiotics and Chemotherapy" co-sponsored an Antibiotics Symposium in Washington, D. C., with the Division of Antibiotics of the United States Food & Drug Administration. Outstanding authorities in the field of antibiotics presented 102 papers during the three-day scientific conference. In its discussion of basic research work on new antibiotic drugs, the symposium material helped greatly to orient the scientific worker on the present status of antibiotic therapy and development. In order to bring this panorama of research to the attention of all clinicians, researchers, and laboratory personnel who are interested in the field of antibiotics, Medical Encyclopedia, Inc., published the entire symposium in book form. This volume also includes tables and illustrations.

Global Epidemiology (*A Geography of Disease and Sanitation*) *by James Stevens Simmons, Tom F. Whayne, Gaylord W. Anderson, Harold Maclachlan Horack, Associate Author Ruth Alida Thomas, and Collaborators, Volume Three, The Near and Middle East, J. P. Lippincott Co., (1954), 357 pp., Cloth,* **$12.**

This new third volume of a series on epidemiology around the world presents comprehensive current information on the health and sanitary conditions of that important region of the world known as the "Near and Middle East." Factual data on environmental sanitation, local health administration, medical facilities, disease conditions and control programs, as well as the socio-economic background are provided for a region which is constantly growing in importance in the commercial, political and military spheres. This is a basic work in the field of preventive medicine.

Narcotics and Narcotic Addiction, *by David W. Maurer, Ph.D., Professor of English and the Humanities, University of Louisville, and Victor H. Vogel, M.D., Medical Officer in Charge, Eruopean Activities U.S. Public Health Service, Paris.*

This book describes the various drugs of addiction and reports on the effects which these drugs have on the physiology and psychology of those who are addicted. Some attention is given to the methods of administration used by addicts, since these techniques differ markedly from standard medical procedures. There are special chapters on the treatment of drug addiction, narcotic addiction and crime, narcotic addiction and youth, and the argot of narcotic addicts.

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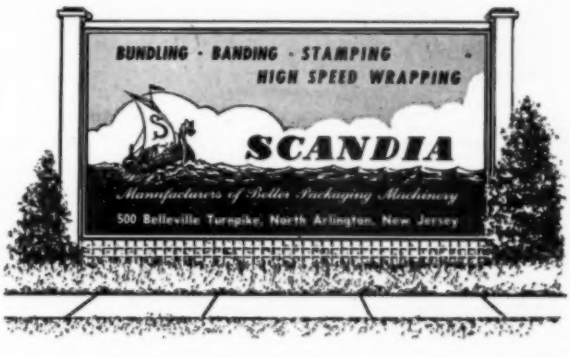
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ADVERTISING INDEX

Aceto Chemical Co., Inc. 598
American Cholesterol Products, Inc. 580-581
American Cyanamid Co., Fine Chemicals Division 570
Anchor Hocking Glass Company 542
Ansbacher-Siegle Corp. 599
Armstrong Cork Company 534
Art Tube Company, Inc. Insert facing 525
Atlas Powder Co. 466-467
Avon Products, Inc. 481

Baker Chemical Co., J. T. Insert facing 537
Beauty Fashion 488
Brown Bag Filling Machine Co., Inc. 597
Bush & Co., W. J. 564

Calumet Manufacturing Co., Inc. 518
Carbide & Carbon Chemicals Co., a Division of Union Carbide & Carbon Corp. 470
Carr-Lowrey Glass Co. 525
Cavalla, Inc., A. 603
Chrystal Co., Inc., Chas. B. 586
Columbia-Southern Chemical Corp. 480
Colton Company, Arthur 544, 594
Commercial Solvents Corp. Insert facing 528
Continental Filling Corp. 517
Corn Products Refining Company 564
Cross Paper Products Corp. 522
Crown Cork & Seal Company 521

Day Co., The J. H. 551
Devoid Oil Co., Peder 589
Distillation Products Industries 472
Dodge & Olcott, Inc. 462 and Insert facing 536
Dow Chemical Corp. 526
Drug & Cosmetic Review 482
du Pont de Nemours & Co., Inc., "Cel-O-Seal" Section Insert facing 512
Durlin & Co. Insert facing 469
Duveen Soap Corp. 457

Eastman Chemical Products, Inc. 588
Elgin Manufacturing Co. 550
Emery Industries, Inc. 487
Ertel Engineering Corp. 578

Fairmount Chemical Co., Inc. 603
Felton Chemical Co., Inc. 464
Firmenich Incorporated Cover 4
Florasynth Labs., Inc. 562
French, Inc., Benj. 572
Fritzsche Brothers, Inc. Insert bet. 568-569

Gair Co., Inc., Robert Insert facing 524
General Chemical Division, Allied Chemical & Dye Corp. 463
Givaudan-Delawanna, Inc. Insert bet. 488-489, pg. 530
Glycerine Producers Assn. 478
Goodrich Chemical Co., The B. F. 484
Goldschmidt Chem. Corp. Insert facing 529
Gottscho, Inc., Adolph 600
Gross, A. & Co. 473

Haring Equipment Corp. 524
Haskins, R. G., Company 576
Heyden Chemical Corp. 558
Hoffmann-La Roche, Inc. Insert bet. 536-537
Hormann & Co., F. R. 599
Horn, John 603
Hotel Raleigh 598
Huisking & Co., Inc., Chas. L. 589

Ivers Lee Company Insert facing 520

Jefferson Chemical Co. 486

Kelton Cosmetics Co. 591
Kohnstamm & Co., H. Insert facing 464
Kolmar Laboratories Insert facing 465

Leonhard Wax Co., Theodore 603

Magnus, Mabee & Reynard, Inc. 485
Mallinckrodt Chemical Wks. Insert facing 489
Maschmeijer, A., Jr., Inc. 579
Maywood Chemical Works 477
McGraw Hill Book Company, Inc. 603
Merck & Co., Inc. 461
Metalsmith Division of Orange Roller Bearing Co. 524
National Aniline Division, Allied Chemical & Dye Corp. Insert facing 473
Neumann, Buslee & Wolfe, Inc. 596
New Jersey Zinc Co. 587
New York Quinine & Chemical Works, Inc. Insert facing 552
Niagara Blower Company 593
Norda Essential Oil & Chemical Co. Cover 2
Nysco Laboratories 600

Old Empire Mfg. Chemists, Inc. 596
Owens-Illinois Glass Co. Insert facing 513, pg. 523

Parsons-Plymouth, Inc., M. W. 572
Penick & Co., S. B. 469
Pennsylvania Glass Products Co., Inc. 516
Perl Machine Mfg. Co. 524
Perry Brothers 579
Pfaltz & Bauer Co., Inc. 603
Pfizer & Co., Inc., Chas. Insert facing 488
Pittsburgh Lectrodryer Corp. 548
Plastic Assembled Products Co. 538
Plax Corporation 514
Polak's Frutal Works 465
Polak & Schwarz, Inc. 539
Poly Perm Printing, Inc. 577
Popper & Sons, Inc. 586
Potdevin Machine Co. 550
Progressive Labelling Machine, Inc. 601

Reheis Co., Inc. 595
Rhodia, Inc. 554
Richford Corporation 583
Rosenthal-Bercow Co., Inc. 592
Roubechez, Inc. 597
Roure-Dupont, Inc. 532

Santonin Company of America, Inc. 589
Savoy Drug & Chemical Company 577
Scandia Manufacturing Co. 601
Schimmel & Co., Inc. 476
Seaplant Chemical Corp. 584
Sheffield Tube Corp. Insert facing 521
Shulton, Inc. Insert facing 472
Sindar Corporation Insert facing 553
Standard Electric Mfg. Co., Inc. 601
Standard Oil Company 459
Standard Pharmacal Company 578
Sterwin Chemical, Inc. 603
Stokes Machine Co., F. J. 540
Stokes & Smith Company 546
Sunkist Growers Insert facing 468
Sun Tube Corp. 510
Swift & Co. 483
Synfleur Scientific Labs., Inc. 471
Syntomatic Corp. 468

Tablet Coating Book 520
Tamms Industries, Inc. 601
Thurston & Braidich 594
Tombarel Products Corp. 460
Trade Mark Record Book 566

Ungerer & Co., Inc. Cover 3
Union Carbide & Carbon Corp., Carbide & Carbon Chemical Co. 470
U. S. Bottlers Machinery Co. 582
U. S. Industrial Chemicals, Inc., Insert bet. 480-481

van-Ameringen-Haebler, Inc. 474-475
Verley & Company, Albert Insert bet. 560-561
Verona Chemical Company 479

Welch, Holme & Clarke, Inc. 585
Will & Baumer Candle Co. 590
Williams Company (Canada) Ltd., J. B. 603
Windsor Chemical Laboratories 592
Witco Chemical Co. 604
Wolf, Jacques & Co. 590

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